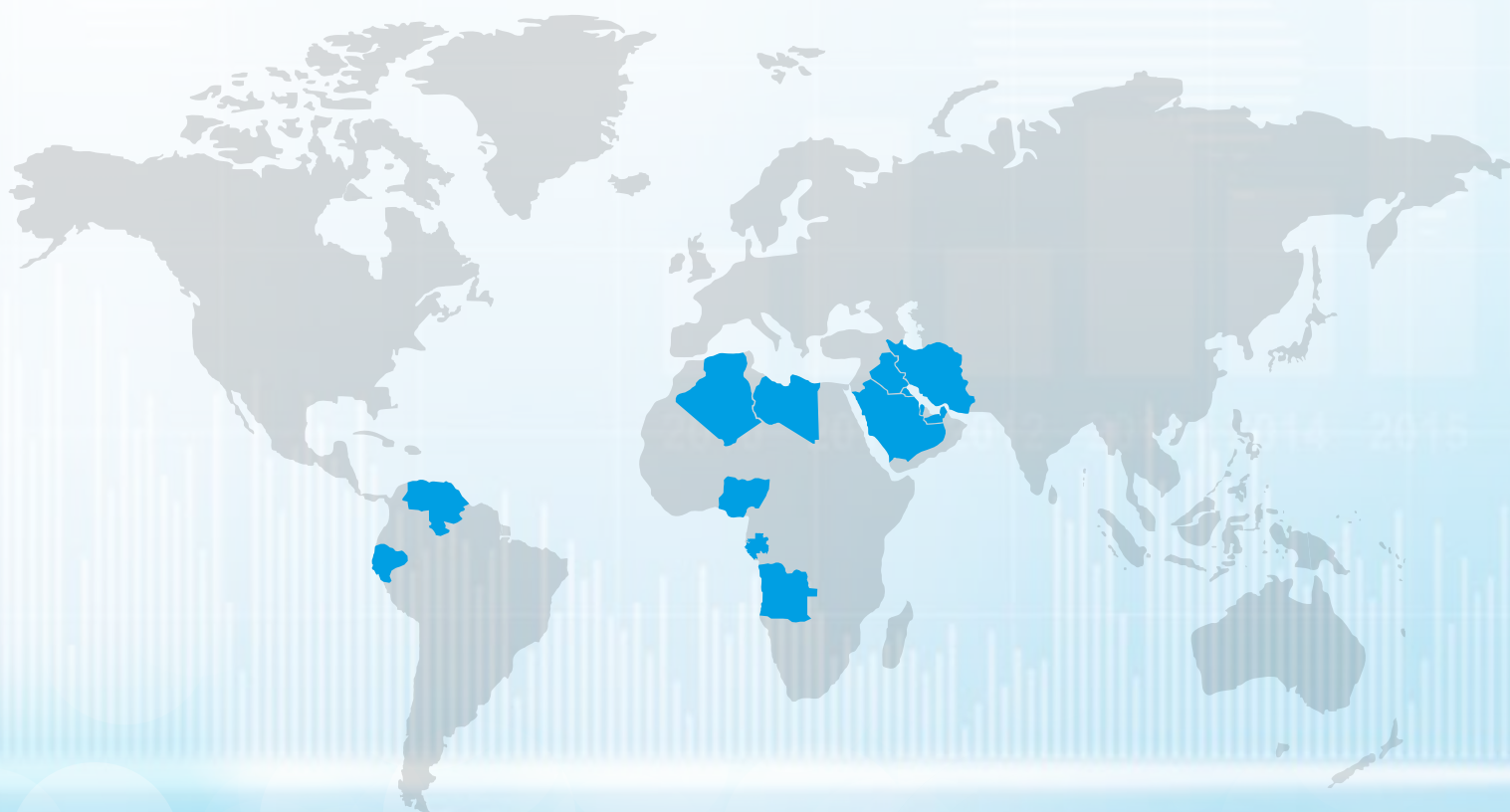


**2017**

Organization of the Petroleum Exporting Countries

# **OPEC**

## **Annual Statistical Bulletin**



1965 – 2017  
52<sup>nd</sup> edition

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Major OPEC flows of crude and refined oil	inside back cover



*Mohammad Sanusi Barkindo, OPEC Secretary General*

It is an honour to be able to present the 52nd edition of the Annual Statistical Bulletin (ASB), one of OPEC's most important publications.

Since its first publication in 1965, the ASB has been a useful reference tool for research analysts and academics, as well as policy-makers and many others working in the oil and gas industry. It makes available data about the oil and gas industry worldwide and also functions as an important source of reliable information for the benefit of different stakeholders in the oil industry.

The 2017 ASB provides key statistical data for all of OPEC's 13 Member Countries — Algeria, Angola, Ecuador, Gabon, Islamic Republic of Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates and Venezuela (the 53rd edition of the ASB will include data for Equatorial Guinea) — as well as their National Oil Companies.

In addition, it also provides useful information about other non-OPEC oil producing countries, bringing together important data on the upstream and the downstream, on exports, imports, production, refineries, pipelines and shipping.

In regularly publishing the ASB and making such data publicly available, OPEC seeks to ensure greater data transparency and increased sharing of information about the oil and gas industry and its many stakeholders. This has long been one of OPEC's key objectives.

The 2017 edition of the ASB is available in various formats including print and PDF. A separate interactive online version, which is freely available on the OPEC website, includes historical time-series data going back to 1960.

The ASB is also available in a Smart App version, with many advanced features. This can be downloaded for both iOS and Android mobile devices.

The ASB is the product of detailed and time-intensive work over many months, involving the contributions of many analysts, researchers and statisticians at the OPEC Secretariat and in our Member Countries. Their work has to be commended, for it is only through such efforts that the Organization can continue to regularly fulfil its commitment to contribute to market stability through an enhancement of data transparency.

I therefore would like to thank the staff at the OPEC Secretariat, as well as colleagues and officials in OPEC Member Countries, for their commitment, continuing hard work and valuable contributions.

A handwritten signature in black ink, appearing to read 'S. Barkindo', written in a cursive style.

Mohammad Sanusi Barkindo  
Secretary General



This year's *OPEC Annual Statistical Bulletin (ASB)*, which is comprised of data up to the end of 2016, reveals the following important facts:

► In 2016, world crude oil production inched up by 0.35m b/d or 0.5 per cent as compared to 2015, to reach 75.48m b/d, marking a seventh consecutive year of growth. The majority of non-OPEC countries registered substantial declines in their 2016 average crude production, as compared to 2015. The biggest declines were for the United States, –0.54m b/d or –5.7 per cent and China, –0.31m b/d or –7.2 per cent. In 2016, the top three crude oil producing countries were Saudi Arabia (10.46m b/d), Russia (10.29m b/d) and the United States (8.88m b/d).

► World oil demand averaged at 95.12m b/d in 2016, up by 1.5 per cent year-on-year, with the largest increases in Asia and Pacific, particularly China and India, Western Europe, North America and Africa. 2016 oil demand in the Middle East remained flat year-on-year, while oil demand declined in Latin America for the second year in a row. Total OECD oil demand grew solidly for the second consecutive year in 2016, while oil demand in OPEC Member Countries declined for the first time since 1999, dropping by 0.20m b/d or 2.2 per cent, as compared to 2015, mainly as a result of declining oil demand in Venezuela, Ecuador, Saudi Arabia and IR Iran. Distillates and gasoline account for around 56 per cent of 2016 total world oil demand and are on increasing trends. Residual fuel oil requirements share in 2016 total oil demand amounts roughly to seven per cent, with requirements marking yearly gains for the first time since 2004. Gasoline dominates 2016 oil demand growth in Asia and Pacific and North America, while distillates are robust in Western and Eastern Europe. The 2016 OPEC Member Countries' demand remained robust only in relation to residual fuel and declined for all other main petroleum categories, notably gasoline and distillates.

► Total exports of crude oil of OPEC Member Countries stood at 25.01m b/d in 2016 from 23.49m b/d in 2015. This increase represents a 6.5 per cent growth on a year-on-year basis. As in previous years, the bulk of crude oil from OPEC Members was exported to the Asia and Pacific region, 15.72m b/d or 62.9 per cent. Significant volumes of crude oil were also exported to North America, which increased its imports from OPEC Members from 2.81m b/d in 2015 to 3.29m b/d in 2016. Europe imported 4.21m b/d of crude oil from OPEC Members, 2.5 per cent less as compared to 2015 volumes. OPEC Members' exports of petroleum products averaged 5.29m b/d during 2016, up by 0.90m b/d or 20.5 per cent as compared to 2015. OPEC Members' imports of petroleum products stood at 2.06m b/d in 2016, roughly 0.15m b/d, or 6.7 per cent lower than in 2015.

► Total world proven crude oil reserves stood at 1,492bn b at the end of 2016, increasing slightly by 0.3 per cent from the previous year's level of 1,488bn b. The largest additions came from Iraq, Venezuela and Norway. Total OPEC Members' proven crude oil reserves increased 0.5 per cent to 1,217bn b at the end of 2016, with a share of 81.5 per cent of total world crude oil reserves. In 2016, proven natural gas reserves increased by 0.4 per cent at approximately 200.5 trillion standard cu m. This increase in natural gas reserves came on the back of new discoveries in the Middle East and Africa, almost solely relating to OPEC Members.

► World refinery capacity expanded by 0.45m b/cd to stand at 97.37m b/cd at the end of 2016, mainly supported by additions in North America and the Middle East, as well as Asia and Pacific regions. In the Middle East, expansions came from OPEC Members, while the United States, China and South Korea accounted for additions in North America and Asia and Pacific. 2016 refinery capacity in the OECD grew for the second consecutive year, mainly due to gains in the United States. Global refinery throughput ramped up by 1.7 per cent to reach 81.94m b/d in 2016 with largest gains in the Asia and Pacific and the Middle East. In the Middle East, the gains in refinery throughput originated in OPEC Member Countries. India, China and South Korea dominated the gains in the Asia and Pacific region.

► The OPEC Reference Basket averaged at \$40.76/b in 2016, down from \$49.49/b in 2015 and reaching the lowest yearly average since 2004. The yearly decline valued at \$8.73/b or 17.6 per cent as compared to 2015. The 2016 volatility stood at \$7.28/b or, equivalently, 17.9 per cent relative to the yearly average. The oil market remained mostly in contango since the 2H2014.



# SECTION 1

## Summary



Table 1.1  
OPEC Members' facts and figures, 2016

	Algeria	Angola	Ecuador	Gabon	IR Iran	Iraq	Kuwait	Libya	Nigeria	Qatar	Saudi Arabia	United Arab Emirates	Venezuela	OPEC
Population <i>million inhabitants</i>	40,800	27,490	16,520	1,881	80,040	37,884	4,411	6,385	177,072	2,490	32,139	9,856	31,033	468,000
Land area <i>1,000 sq km</i>	2,382	1,248	284	268	1,648	438	18	1,760	924	12	2,150	84	916	12,130
GDP per capita \$	3,949	3,486	5,853	7,588	5,120	4,389	25,067	5,193	2,262	61,258	19,902	37,678	9,257	6,280
GDP at market prices <i>million \$</i>	161,104	95,821	96,690	14,273	409,823	166,274	110,572	33,157	400,571	152,509	639,617	371,353	287,274	2,939,039
GDP growth <i>real PPP %</i>	3.4	1.0	-2.0	2.9	4.5	5.0	2.0	-4.0	-1.5	2.2	1.4	2.3	-9.0	1.3
Value of exports <i>million \$</i>	29,054	25,935	16,744	5,871	97,386	43,890	46,261	11,986	34,704	72,459	179,575	298,653	26,473	888,990
Value of imports <i>million \$</i>	49,437	12,515	15,618	2,977	73,300	38,713	30,830	11,012	35,240	63,529	131,433	270,985	17,977	753,566
Current account balance <i>million \$</i>	-26,314	-4,929	1,109	-1,279	23,566	-3,134	947	-13,491	2,722	-2,885	-24,914	11,546	-6,684	-43,740
Value of petroleum exports <i>million \$</i>	18,638	25,935	5,442	4,198	41,123	43,753	41,461	9,313	27,788	22,958	134,373	45,559	25,142	445,684
Proven crude oil reserves <i>million barrels</i>	12,200	9,523	8,273	2,000	157,200	148,766	101,500	48,363	37,453	25,244	266,208	97,800	302,250	1,216,780
Natural gas reserves <i>billion cu m</i>	4,504.0	308.1	10.9	25.5	33,721.2	3,819.9	1,784.0	1,504.9	5,475.2	24,072.5	8,619.3	6,091.0	5,739.7	95,676
Crude oil production <i>1,000 b/d</i>	1,146.3	1,721.6	549.0	220.2	3,651.3	4,647.8	2,954.3	390.2	1,427.3	651.5	10,460.2	3,088.3	2,372.5	33,280.5
Natural gas marketed production <i>million cu m</i>	93,152.0	1,919.0	530.0	551.1	226,905.0	10,416.4	17,291.0	15,570.5	42,562.4	182,830.3	110,860.0	61,083.7	27,718.0	791,389.4
Refinery capacity <i>1,000 b/cd</i>	650.8	65.0	190.8	24.0	1,901.0	900.0	936.0	380.0	446.0	429.0	2,899.0	1,124.0	1,890.6	11,836.2
Refinery throughput <i>1,000 b/d</i>	658.5	53.7	150.3	16.8	1,857.3	625.8	801.0	90.1	61.9	280.0	2,459.1	1,100.3	1,210.4	9,364.8
Output of petroleum products <i>1,000 b/d</i>	622.1	53.0	205.7	16.2	1,857.3	448.9	923.5	133.9	53.5	632.3	2,825.9	1,089.0	960.9	9,822.1
Oil demand <i>1,000 b/d</i>	399.0	122.0	247.0	25.2	1,742.2	757.1	349.7	207.6	393.1	227.0	3,209.8	799.2	566.2	9,045.2
Crude oil exports <i>1,000 b/d</i>	668.3	1,670.1	414.7	205.2	1,921.7	3,803.5	2,128.2	254.7	1,738.0	503.4	7,463.4	2,407.8	1,835.0	25,013.9
Exports of petroleum products <i>1,000 b/d</i>	541.1	54.3	31.4	5.6	897.9	36.8	707.4	34.3	17.9	568.1	1,502.6	630.0	262.5	5,290.1
Imports of petroleum products <i>1,000 b/d</i>	73.3	75.8	122.6	10.5	61.6	91.7	-	89.9	423.4	20.6	591.1	340.2	160.2	2,060.9
Natural gas exports <i>million cu m</i>	53,974.0	1,149.0	-	-	8,567.0	-	-	4,664.0	25,146.5	130,324.0	-	13,200.0	-	237,024.5

Notes: Land area figures as per official websites.



Table 1.2  
OPEC Members' crude oil production allocations

(1,000 b/d)

	Apr 82– Mar 83	Apr 83– Oct 84	Nov 84– Aug 86	Sep 86– Oct 86	Nov 86	Dec 86	Jan 87– Jun 87	Jul 87– Dec 87	Jan 88– Dec 88	Jan 89– Jun 89
	1/	2/	3/	4/	5/	6/	7/	8/	9/	10/
Algeria	650	725	663	663	669	669	635	667	667	695
Ecuador	200	200	183	183	221	221	210	221	221	230
Gabon	150	150	137	137	160	160	152	159	159	166
IR Iran	1,200	2,400	2,300	2,300	2,317	2,317	2,255	2,369	2,369	2,640
Iraq	1,200	1,200	1,200	1,200	—	—	1,466	1,540	—	2,640
Kuwait	800	1,050	900	900	921	999	948	996	996	1,037
Libya	750	1,100	990	990	999	999	948	996	996	1,037
Nigeria	1,300	1,300	1,300	1,300	1,304	1,304	1,238	1,301	1,301	1,355
Qatar	300	300	280	280	300	300	285	299	299	312
Saudi Arabia	7,150	5,000	4,353	4,353	4,353	4,353	4,133	4,343	4,343	4,524
United Arab Emirates	1,000	1,100	950	950	950	950	902	948	948	988
Venezuela	1,500	1,675	1,555	1,555	1,574	1,574	1,495	1,571	1,571	1,636
<b>OPEC</b>	<b>16,200</b>	<b>16,200</b>	<b>14,811</b>	<b>14,811</b>			<b>14,667</b>	<b>15,410</b>		<b>17,260</b>
<b>OPEC excl Iraq</b>					<b>13,768</b>	<b>13,846</b>			<b>13,870</b>	

	Jul 89– Sep 89	Oct 89– Dec 89	Jan 90– Jul 90	Aug 90	Apr 91– Sep 91	Oct 91– Jan 92	Feb 92– Sep 92	Oct 92– Dec 92	Jan 93– Feb 93	Mar 93– Sep 93
	11/	12/	13/	14/	15/	16/	17/	18/	19/	20/
Algeria	733	771	827	827	827	nd	760	nd	764	732
Ecuador	242	254	273	273	273	nd	273	nd	—	—
Gabon	175	184	197	197	285	nd	273	nd	293	281
IR Iran	2,783	2,926	3,140	3,140	3,217	nd	3,184	nd	3,490	3,340
Iraq	2,783	2,926	3,140	3,140	—	nd	505	nd	500	400
Kuwait	1,093	1,149	1,500	1,500	—	nd	812	nd	1,500	1,600
Libya	1,093	1,149	1,233	1,233	1,425	nd	1,395	nd	1,409	1,350
Nigeria	1,428	1,501	1,611	1,611	1,840	nd	1,751	nd	1,857	1,780
Qatar	329	346	371	371	399	nd	377	nd	380	364
Saudi Arabia	4,769	5,014	5,380	5,380	8,034	nd	7,887	nd	8,395	8,000
United Arab Emirates	1,041	1,094	1,095	1,500	2,320	nd	2,244	nd	2,260	2,161
Venezuela	1,724	1,812	1,945	1,945	2,235	nd	2,147	nd	2,360	2,257
<b>OPEC</b>	<b>18,193</b>	<b>19,126</b>	<b>20,712</b>	<b>21,117</b>	<b>20,855<sup>1</sup></b>	<b>23,650<sup>*</sup></b>	<b>21,608</b>	<b>24,200<sup>*</sup></b>	<b>23,208</b>	<b>22,265</b>

Notes: Totals may not add up due to independent rounding. Angola joined OPEC in January 2007; Ecuador suspended its membership from December 1992 to October 2007. Gabon terminated its membership in January 1995, but rejoined the Organization in July 2016.

1. OPEC excluding Kuwait and Iraq. — No production level allocated.
2. OPEC excluding IR Iran and Iraq. \* Includes Indonesia.
3. OPEC excluding Libya and Nigeria.

Agreed at the:

- 1/ 63rd (Extraordinary) Meeting of the OPEC Conference, March 19–20, 1982.
- 2/ 67th (Extraordinary) Meeting of the OPEC Conference, March 14, 1983. No production level allocated to Saudi Arabia which acted as the swing producer. Venezuela: 1.7m b/d including condensates. Nigeria: At the 70th Meeting of the OPEC Conference, July 10–11, 1984, a temporary production rise to 1.4m b/d and 1.45m b/d in August 1984 and September 1984, respectively, was decided.
- 3/ 71st (Extraordinary) Meeting of the OPEC Conference, October 29–31, 1984. Retained at the 75th (Extraordinary) Meeting of the OPEC Conference, October 4, 1985.
- 4/ 78th Meeting of the OPEC Conference, June 25–30, 1986, and July 28–August 5, 1986, with the exception of Iraq.
- 5/ 79th (Extraordinary) Meeting of the OPEC Conference, October 6–22, 1986, with the exception of Iraq.
- 6/ 79th (Extraordinary) Meeting of the OPEC Conference, October 6–22, 1986, with the exception of Iraq.
- 7/ 80th Meeting of the OPEC Conference, December 11–20, 1986.
- 8/ 81st Meeting of the OPEC Conference, June 25–27, 1987.
- 9/ 82nd Meeting of the OPEC Conference, December 9–14, 1987, with the exception of Iraq. Extended at the 83rd Meeting of the OPEC Conference, June 11–14, 1988, with the exception of Iraq.
- 10/ 84th Meeting of the OPEC Conference, November 21–28, 1988.
- 11/ 85th Meeting of the OPEC Conference, June 5–7, 1989.
- 12/ 3rd Meeting of the Eight-Minister Monitoring Committee, September 23–27, 1989.
- 13/ 86th Meeting of the OPEC Conference, November 25–28, 1989.
- 14/ 87th Meeting of the OPEC Conference, July 26–27, 1990. September 2000–March 2001: Oil Ministers' informal consultations and 1st Ministerial Monitoring Committee, August 26–29, 1990 (interim course of action: OPEC shall consequently increase production in accordance with need). Retained August 1990 agreement at the 88th Meeting of the OPEC Conference, December 12–13, 1990.
- 15/ 3rd Meeting of the Ministerial Monitoring Committee, March 11–12, 1991. Reservations were made by Algeria and IR Iran as to the total OPEC production level. Reiterated without reservations at the 89th Meeting of the OPEC Conference, June 4, 1991.
- 16/ 4th Meeting of the Ministerial Monitoring Committee, September 24–25, 1991. Retained at the 90th Meeting of the Conference, November 26–27, 1991.
- 17/ 6th Meeting of the Ministerial Monitoring Committee, February 12–15, 1992. Reservations were made by IR Iran as to the total OPEC production level and by Saudi Arabia as to their allocated production level. Rollover (inclusive of reservations) at the 91st Meeting of the OPEC Conference, May 21–22, 1992. The Conference also decided to allow any additional production from Kuwait.
- 18/ 9th Meeting of the Ministerial Monitoring Committee, September 16–17, 1992. Reaffirmed to allow for any additional production from Kuwait.
- 19/ 92nd Meeting of the OPEC Conference, November 25–27, 1992, with full support of Member Countries, except Iraq and the allowance of additional volumes to Kuwait as they become available during the 1Q93.
- 20/ 10th Meeting of the Ministerial Monitoring Committee, February 13–16, 1993 with full support of Member Countries, except Iraq. Rollover of this agreement at the 93rd Meeting of the OPEC Conference, June 8–10, 1993, with full support of Member Countries, except Iraq and Kuwait.

Table 1.2  
OPEC Members' crude oil production allocations

(1,000 b/d)

	Oct 93– Jun 96	Jul 96– Dec 97	Jan 98– Mar 98	Apr 98– Jun 98	Jul 98– Mar 99	Apr 99– Mar 00	Apr 00– Jun 00	Jul 00– Sep 00	Oct 1, 00– Oct 30, 00	Oct 31, 00– Jan 01	Feb 01– Mar 01
	21/ 750	22/ 750	23/ 909	24/ 50	25/ 788	26/ 731	27/ 788	28/ 811	29/ 837	30/ 853	31/ 805
Algeria	287	—	—	—	—	—	—	—	—	—	—
Gabon	3,600	3,600	3,942	140	3,318	3,359	—	3,727	3,844	3,917	3,698
IR Iran	400	1,200	1,314	—	—	—	—	—	—	—	—
Iraq	2,000	2,000	2,190	125	1,980	1,836	1,980	2,037	2,101	2,141	2,021
Kuwait	1,390	1,390	1,522	80	1,323	1,227	1,323	1,361	1,404	1,431	1,350
Libya	1,865	1,865	2,042	125	2,033	1,885	2,033	2,091	2,157	2,198	2,075
Nigeria	378	378	414	30	640	593	640	658	679	692	653
Qatar	8,000	8,000	8,761	300	8,023	7,438	8,023	8,253	8,512	8,674	8,189
Saudi Arabia	2,161	2,161	2,366	125	2,157	2,000	2,157	2,219	2,289	2,333	2,201
United Arab Emirates	2,359	2,359	2,583	200	2,845	2,720	2,845	2,926	3,019	3,077	2,902
Venezuela	<b>23,190</b>	<b>23,703</b>	<b>26,044</b>								
<b>OPEC</b>											
<b>OPEC excl Iraq</b>				<b>1,175</b>	<b>23,107</b>	<b>21,789</b>	<b>19,789<sup>2</sup></b>	<b>24,083</b>	<b>24,841</b>	<b>25,315</b>	<b>23,894</b>
<b>Target</b>				<b>24,432</b>							

	Apr 01– Aug 01	Sep 01– Dec 01	Jan 02– Dec 02	Jan 03	Feb 03– May 03	Jun 03– Oct 03	Nov 03– Mar 04	Apr 04– Jun 04	Jul 04	Aug 04– Oct 04	Nov 1, 04– Mar 16, 05
	32/ 773	33/ 741	34/ 693	35/ 735	36/ 782	37/ 811	38/ 782	39/ 750	40/ 814	41/ 830	42/ 862
Algeria	3,552	3,406	3,186	3,377	3,597	3,729	3,597	3,450	3,744	3,817	3,964
IR Iran	—	—	—	—	—	—	—	—	—	—	—
Iraq	1,941	1,861	1,741	1,845	1,966	2,038	1,966	1,886	2,046	2,087	2,167
Kuwait	1,296	1,242	1,162	1,232	1,312	1,360	1,312	1,258	1,365	1,392	1,446
Libya	1,993	1,911	1,787	1,894	2,018	2,092	2,018	1,936	2,101	2,142	2,224
Nigeria	627	601	562	596	635	658	635	609	661	674	700
Qatar	7,865	7,541	7,053	7,476	7,963	8,256	7,963	7,638	8,288	8,450	8,775
Saudi Arabia	2,113	2,025	1,894	2,007	2,138	2,217	2,138	2,051	2,225	2,269	2,356
United Arab Emirates	2,786	2,670	2,497	2,647	2,819	2,923	2,819	2,704	2,934	2,992	3,107
Venezuela	<b>22,946</b>	<b>21,998</b>	<b>20,575</b>	<b>21,809</b>	<b>23,230</b>	<b>24,083</b>	<b>23,230</b>	<b>22,282</b>	<b>24,178</b>	<b>24,653</b>	<b>25,601</b>
<b>OPEC excl Iraq</b>											

- 21/ 94th (Extraordinary) Meeting of the OPEC Conference, September 25–29, 1993, with full support of Member Countries, except Iraq. Maintained at the 12th Meeting of the Ministerial Monitoring Committee, March 25–26, 1994, with full support of Member Countries, except Iraq. Maintained at the 97th, 98th and 99th Meeting of the OPEC Conference, November 21–22, 1994, June 19–20, 1995, and November 21–22, 1995, respectively.
- 22/ 100th Meeting of the OPEC Conference, June 5–7, 1996. The remaining volume of 1.2m b/d is to be supplied by Iraq. Rollover of the agreement at the 101st and the 102nd Meeting of the OPEC Conference, November 27–28, 1996, and June 25–26, 1997, respectively.
- 23/ 103rd Meeting of the OPEC Conference, November 26–December 1, 1997. The remaining volume of 1,314,080 b/d is to be supplied by Iraq.
- 24/ 104th Meeting (Extraordinary) of the OPEC Conference, March 30, 1998. Data reflects temporary production cuts from OPEC excluding Iraq production in February 1998 as reported by selected secondary sources. Iraq is not called upon to participate in this agreement.
- 25/ 105th Meeting of the OPEC Conference, June 24, 1998. Iraq is not called upon to participate in this agreement.
- 26/ 107th Meeting of the OPEC Conference, March 23, 1999. Reaffirmed strong commitment to the agreement at the 108th Meeting of the OPEC Conference, September 22, 1999. Iraq is not called upon to participate in this agreement.
- 27/ 109th Meeting of the OPEC Conference, March 27–29, 2000. Agreement of OPEC Member Countries excluding IR Iran and Iraq.
- 28/ 110th (Extraordinary) Meeting of the OPEC Conference, June 21, 2000. Iraq is not called upon to participate in this agreement.
- 29/ 111th Meeting of the OPEC Conference, September 10–11, 2000. Iraq is not called upon to participate in this agreement.
- 30/ 111th Meeting of the OPEC Conference, September 10–11, 2000; including additional 500,000 b/d (price band mechanism) as announced by the OPEC President on October 30, 2000, and effective from October 31, 2000. Iraq is not called upon to participate in this agreement.
- 31/ 113th (Extraordinary) Meeting of the OPEC Conference, January 17, 2001. Iraq is not called upon to participate in this agreement.
- 32/ 114th Meeting of the OPEC Conference, March 16–17, 2001. Retained at the 115th (Extraordinary) and 116th (Extraordinary) Meeting of the OPEC Conference, June 5 and July 3, 2001, respectively. Iraq is not called upon to participate in this agreement.
- 33/ OPEC Conference, July 25, 2001. Retained at the 117th Meeting of the OPEC Conference, September 26–27, 2001. Iraq is not called upon to participate in this agreement.
- 34/ Announced during the 118th (Extraordinary) Meeting of the OPEC Conference, November 14, 2001, and confirmed its implementation during the Consultative Meeting of the OPEC Conference in Cairo, December 28, 2001. Retained at the 119th (Extraordinary), 120th (Extraordinary) and 121st Meeting of the OPEC Conference, March 15, June 26 and September 19, 2002, respectively. Iraq is not called upon to participate in this agreement.
- 35/ 122th (Extraordinary) Meeting of the OPEC Conference, December 12, 2002. Iraq is not called upon to participate in this agreement.
- 36/ 123rd (Extraordinary) Meeting of the OPEC Conference, January 12, 2003. Retained at the 124th Meeting of the OPEC Conference, March 11, 2003. Iraq is not called upon to participate in this agreement.
- 37/ Consultative Meeting of the OPEC Conference, April 24, 2003. Retained at the 125th (Extraordinary) and 126th (Extraordinary) Meeting of the OPEC Conference, June 11 and July 31, 2003, respectively. Iraq is not called upon to participate in this agreement.
- 38/ 127th Meeting of the OPEC Conference, September 24, 2003. Retained at the 128th (Extraordinary) and 129th (Extraordinary) Meeting of the OPEC Conference, December 4, 2003, and February 10, 2004, respectively. Iraq is not called upon to participate in this agreement.
- 39/ 129th (Extraordinary) Meeting of the OPEC Conference, February 10, 2004. Reconfirmed at the 130th Meeting of the OPEC Conference, March 31, 2004. Iraq is not called upon to participate in this agreement.
- 40/ 131st (Extraordinary) Meeting of the OPEC Conference, June 3, 2004. Iraq is not called upon to participate in this agreement.
- 41/ 131st (Extraordinary) Meeting of the OPEC Conference, June 3, 2004. Iraq is not called upon to participate in this agreement.
- 42/ 132nd Meeting of the OPEC Conference, September 15, 2004. Iraq is not called upon to participate in this agreement. During the 133rd (Extraordinary) Meeting of the OPEC Conference, December 10, 2004, Member Countries agreed to collectively reduce the over-production by 1m b/d from their current actual output, effective January 1, 2005. Agreement of 132nd Meeting is retained at the 134th (Extraordinary) Meeting of the OPEC Conference, January 30, 2005.

Table 1.2  
OPEC Members' crude oil production allocations

(1,000 b/d)

	Mar 17, 05– Jun 30, 05	Jul 05– Oct 06	Nov 06– Jan 07	Feb 07– Oct 07	Nov 07– Dec 07	Jan 08– Sep 08	Oct 08	Nov 08– Dec 08	Jan 09– Dec 11	Jan 12– Dec 15	Jan 17–
	43/	44/	45/	46/	47/	48/	49/	50/	51/	52/	53/
Algeria	878	894	59	25	nd	nd	nd	71	nd	nd	1,039
Angola	—	—	—	—	—	nd	nd	99	nd	nd	1,673
Ecuador	—	—	—	—	—	nd	nd	27	nd	nd	522
Gabon	—	—	—	—	—	—	—	—	—	—	193
IR Iran	4,037	4,110	176	73	nd	nd	nd	199	nd	nd	3,797
Iraq	—	—	—	—	—	—	—	—	—	nd	4,351
Kuwait	2,207	2,247	100	42	nd	nd	nd	132	nd	nd	2,707
Libya	1,473	1,500	72	30	nd	nd	nd	89	nd	nd	—
Nigeria	2,265	2,306	100	42	nd	nd	nd	113	nd	nd	—
Qatar	713	726	35	15	nd	nd	nd	43	nd	nd	618
Saudi Arabia	8,937	9,099	380	158	nd	nd	nd	466	nd	nd	10,058
United Arab Emirates	2,400	2,444	101	42	nd	nd	nd	134	nd	nd	2,874
Venezuela	3,165	3,223	138	57	nd	nd	nd	129	nd	nd	1,972
<b>OPEC</b>											<b>29,804<sup>3</sup></b>
<b>OPEC excl Iraq</b>	<b>26,075</b>	<b>26,549</b>						<b>1,500</b>			
<b>OPEC excl Angola, Ecuador and Iraq</b>			<b>1,161</b>	<b>484</b>	<b>500*</b>						
<b>Target OPEC excl Angola, Ecuador and Iraq</b>			<b>26,300 *</b>	<b>25,800 *</b>	<b>27,253*</b>						
<b>Target OPEC excl Iraq</b>						<b>29,673 *</b>	<b>28,808</b>	<b>27,308</b>	<b>24,845</b>		
<b>Target OPEC</b>										<b>30,000</b>	<b>32,500*</b>

43/ 135th Meeting of the OPEC Conference, March 16, 2005. Iraq is not called upon to participate in this agreement. The President of the Conference is authorized, after consultation with fellow Heads of Delegation, to announce an additional 500,000 b/d increase until its next Meeting, if prices remain at current high levels or continue to further rise.

44/ 136th (Extraordinary) Meeting of the OPEC Conference, June 15, 2005. Iraq is not called upon to participate in this agreement. The President of the Conference is authorized, after consultation with fellow Heads of Delegation, to announce an additional 500,000 b/d increase until its next Meeting, if prices remain at current high levels or continue to further rise. The 137th OPEC Conference, September 20, 2005, agreed to make available to the market the spare capacity of 2m b/d, should it be called for, for a period of three months, starting October 1, 2005. The 138th (December 12, 2005), the 139th (Extraordinary, January 31, 2006), the 140th (March 8, 2006) and the 141st (Extraordinary, June 1, 2006) Conference retained the OPEC production level as agreed on June 15, 2005.

45/ Consultative Meeting of the OPEC Conference, October 19–20, 2006. Data reflects interim production cuts from OPEC excluding Iraq production in September 2006. Iraq is not called upon to participate in this agreement.

46/ 143rd (Extraordinary) Meeting of the OPEC Conference, December 14, 2006. Data reflects a further production cut to the decision taken in Doha, October 19–20, 2006. Iraq is not called upon to participate in this agreement.

47/ 145th Meeting of the OPEC Conference, September 11, 2007. Angola and Iraq are not called upon to participate in this agreement. Data reflect production increase of 500,000 b/d for OPEC (excluding Angola and Iraq) to achieve 27.253m b/d.

48/ 146th (Extraordinary) Meeting of the OPEC Conference, December 5, 2007. Iraq is not called upon to participate in the agreement.

49/ 149th Meeting of the OPEC Conference, September 9–10, 2008: The Conference agreed to abide to September 2007 production allocations (adjusted to include new Members Angola and Ecuador and excluding Indonesia and Iraq), totalling to 28.8m b/d.

50/ 150th (Extraordinary) Meeting of the OPEC Conference, October 24, 2008: Data reflects a production cut of 1.5m b/d to achieve 27.31m b/d. Iraq and Indonesia are not called upon to participate in the agreement.

51/ The 151th (Extraordinary) Meeting of the Conference, December 17, 2008, agreed to reduce OPEC excluding Iraq production by total of 4.2m b/d from September levels of the actual production based on secondary sources. Iraq is not called upon to participate in the agreement.

52/ The 160th Meeting of the Conference, December 14, 2011, decided to maintain the total OPEC production level of 30.0m b/d. This agreement was maintained at the 161st (June 14, 2012), the 162nd (December 12, 2012), the 163rd (May 31, 2013), the 164th (December 4, 2013), the 165th (June 11, 2014), the 166th (November 27, 2014) and — for the last time — at the 167th (June 5, 2015) Meeting of the Conference.

53/ The 171st Meeting of the Conference, November 30, 2016, decided to reduce its production by around 1.2m b/d to bring its ceiling to 32.5m b/d, effective of January 1, 2017. Agreed crude oil production levels were allocated, with the exception of Libya and Nigeria.



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## SECTION 2

# Macro-economics

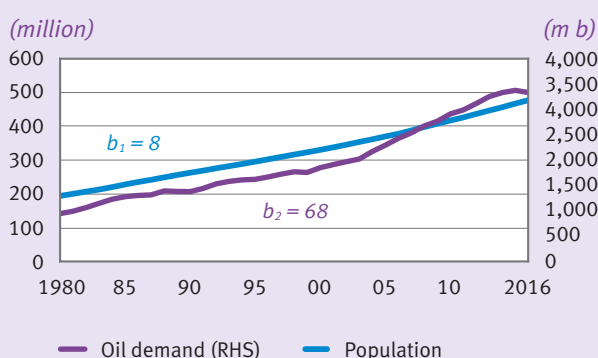




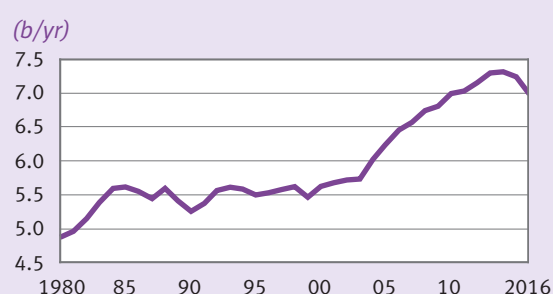
## Oil use per capita in OPEC Member Countries

During the period 1980 to 2016, OPEC Member Countries' populations increased by about 275 million and, in relative terms, by almost 250 per cent, marking an average annual increase of around  $b_1 \approx 8$  million per year.<sup>1</sup> The largest percentage gains have taken place in Middle Eastern OPEC Member Countries with relatively small populations, such as Qatar and the United Arab Emirates. OPEC Members' oil demand gained almost 2.4 billion barrels during the same period, marking an average of  $b_2 \approx 68$  m b/yr.<sup>2</sup> Oil demand in OPEC Members is determined to a large extent by the transportation and industrial sectors, particularly the petroleum products categories of gasoline and distillates, as well as kerosenes. The higher rate in oil consumed, compared to the population, implies a sharp increase in oil use per capita — from 4.9 b/yr in 1980 to 7.0 b in 2016 — with the largest increases in relative terms originating in Middle Eastern OPEC Members. Healthy growth in the transportation sector of OPEC Members between 2003 and 2013, in addition to a developing industrial sector, have supported oil demand per capita gains considerably.

OPEC Members' population and oil demand



OPEC Members' oil demand per capita



Oil demand per capita in OPEC Members increased sharply during the early 1980s, as well as from 2003 to 2013. It remained relatively stagnant between the mid-1980s and 2003, and further declined from 2014 onwards, as shown in the figure above (right-hand side). The main factors behind declining oil demand per capita as of 2014 were efficiencies in the transportation sector, increasing petroleum products retail prices in some OPEC Member Countries and fuel substitution with other primary commodities, notably natural gas in the industrial sector. As can be seen from the figure on the left-hand side, while population growth in OPEC Member Countries follows a linear trend during the time period 1980–2016, oil demand has switched towards a non-linear structure, especially after strong gains during the period 2005–2013. Oil demand per capita in 2016 varies substantially among OPEC Members, ranging from a minimum of 2 to a maximum of 37 b/yr.

### Notes:

1. Slope coefficient of simple linear regression model with population as a dependent variable and the year as an independent variable.
2. Slope coefficient of simple linear regression model with oil demand as a dependent variable and the year as an independent variable.

Table 2.1

**OPEC Members' population**

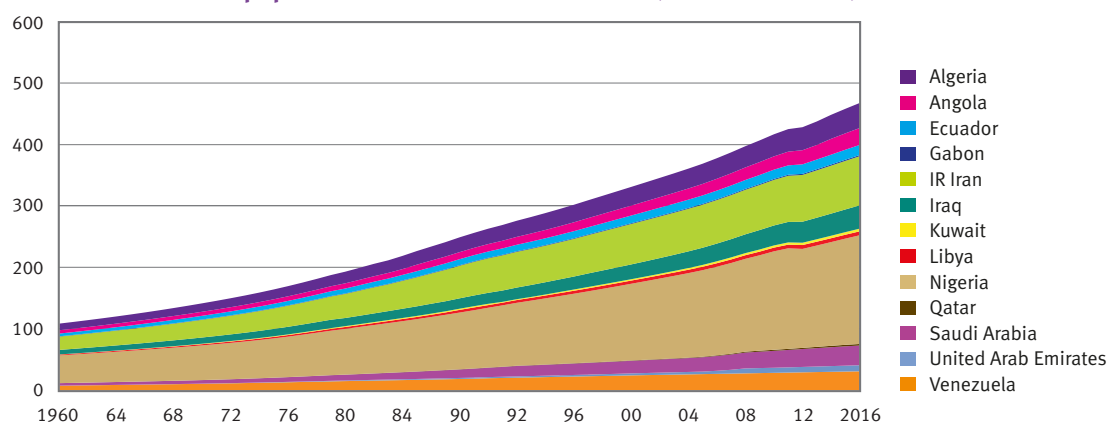
(million inhabitants)

	2012	2013	2014	2015	2016	change 16/15
Algeria	37.495	38.297	39.114	39.963	40.800	0.837
Angola	22.984	23.673	25.789	26.682	27.490	0.808
Ecuador	15.521	15.775	16.027	16.279	16.520	0.241
Gabon	1.735	1.803	1.829	1.855	1.881	0.026
IR Iran	76.157	77.152	78.144	79.109	80.040	0.931
Iraq	34.208	35.096	36.005	36.934	37.884	0.950
Kuwait	3.824	3.965	4.092	4.239	4.411	0.172
Libya	6.283	6.266	6.259	6.322	6.385	0.063
Nigeria	161.206	165.048	168.972	172.980	177.072	4.092
Qatar	1.833	2.004	2.216	2.434	2.490	0.056
Saudi Arabia	29.196	29.994	30.770	31.521	32.139	0.618
United Arab Emirates	8.768	9.031	9.302	9.581	9.856	0.275
Venezuela	29.365	29.786	30.206	30.620	31.033	0.413
<b>OPEC</b>	<b>428.575</b>	<b>437.890</b>	<b>448.726</b>	<b>458.520</b>	<b>468.000</b>	<b>9.481</b>

Graph 2.1

**OPEC Members' population**

(million inhabitants)



Graph 2.2

**Population as a share of total OPEC, 2016**

(%)

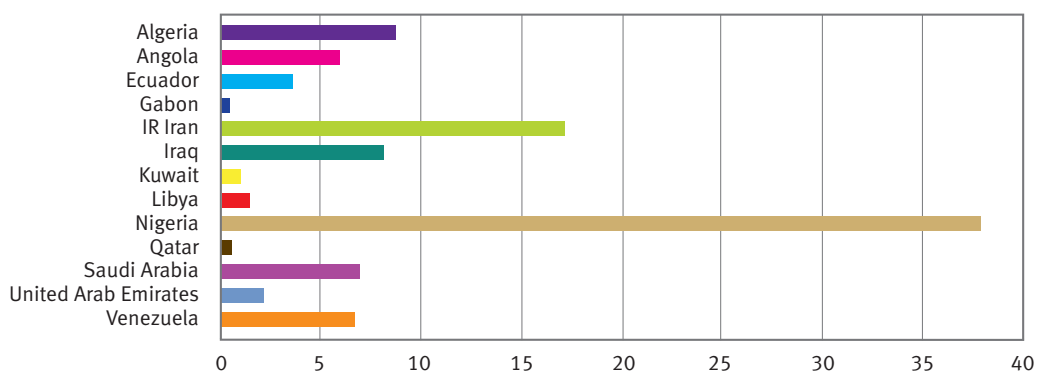
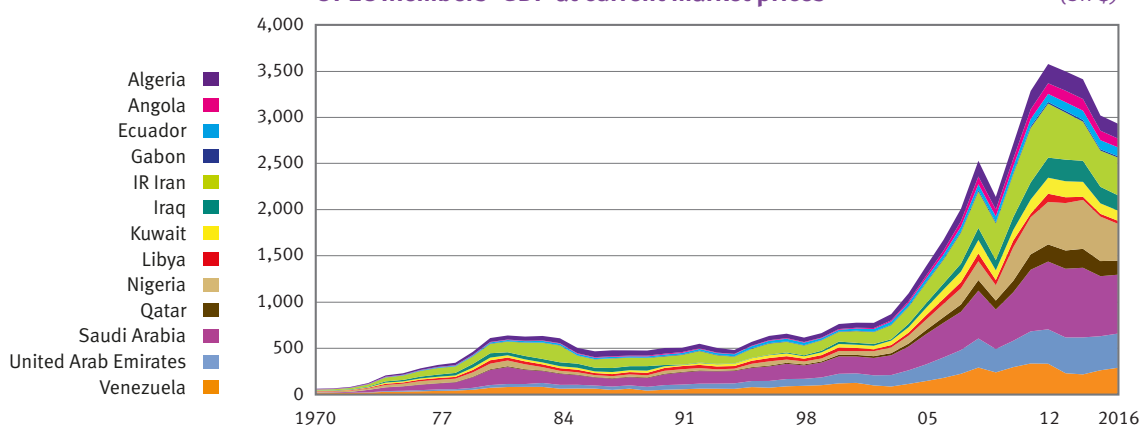


Table 2.2

**OPEC Members' GDP at current market prices***(m \$)*

	2012	2013	2014	2015	2016
Algeria	209,005	209,751	214,120	165,152	161,104
Angola	115,342	124,912	126,777	102,962	95,821
Ecuador	87,925	94,776	100,917	99,068	96,690
Gabon	17,181	17,596	18,209	14,370	14,273
IR Iran	587,209	511,621	425,326	393,436	409,823
Iraq	218,032	234,638	228,491	179,513	166,274
Kuwait	174,066	174,179	162,695	114,078	110,572
Libya	89,242	62,872	33,819	29,763	33,157
Nigeria	461,448	515,134	531,217	483,136	400,571
Qatar	186,322	198,183	205,660	164,190	152,509
Saudi Arabia	735,975	746,647	756,350	651,757	639,617
United Arab Emirates	373,432	388,598	401,958	370,296	371,353
Venezuela	331,457	228,017	215,296	260,089	287,274
<b>OPEC</b>	<b>3,586,635</b>	<b>3,506,924</b>	<b>3,420,836</b>	<b>3,027,811</b>	<b>2,939,039</b>

Graph 2.3

**OPEC Members' GDP at current market prices***(bn \$)*

Graph 2.4

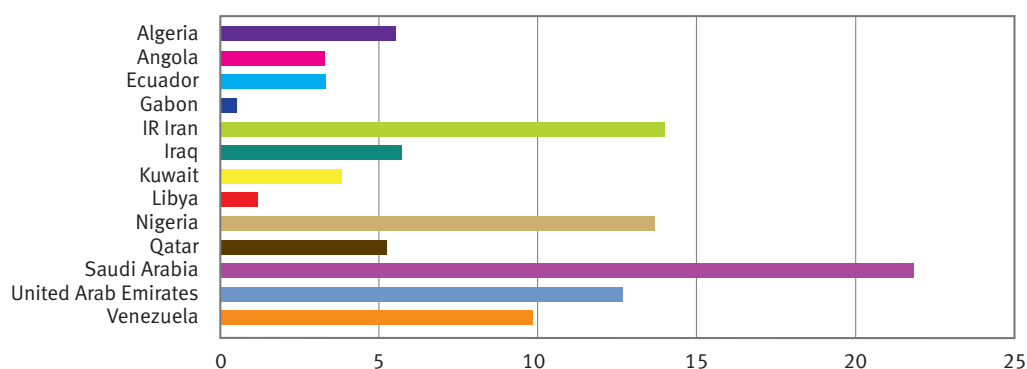
**GDP at current market prices as a share of total OPEC, 2016***(%)*

Table 2.3

**OPEC Members' real GDP growth rates PPP based weights**

(%)

	2012	2013	2014	2015	2016
Algeria	3.3	2.8	3.8	3.9	3.4
Angola	5.2	6.8	4.8	3.0	1.0
Ecuador	5.6	4.6	4.0	0.2	-2.0
Gabon	5.3	5.6	4.3	4.0	2.9
IR Iran	-6.6	-1.9	4.3	0.9	4.5
Iraq	13.9	7.6	0.1	-2.4	5.0
Kuwait	6.6	1.1	0.5	0.9	2.0
Libya	102.2	-16.9	-26.1	-11.7	-4.0
Nigeria	4.3	5.4	6.2	2.8	-1.5
Qatar	4.7	4.4	4.0	3.6	2.2
Saudi Arabia	5.4	2.7	3.6	3.5	1.4
United Arab Emirates	7.1	4.6	3.1	3.8	2.3
Venezuela	5.6	1.3	-3.9	-6.2	-9.0
<b>OPEC</b>	<b>4.7</b>	<b>2.0</b>	<b>2.2</b>	<b>1.3</b>	<b>1.3</b>

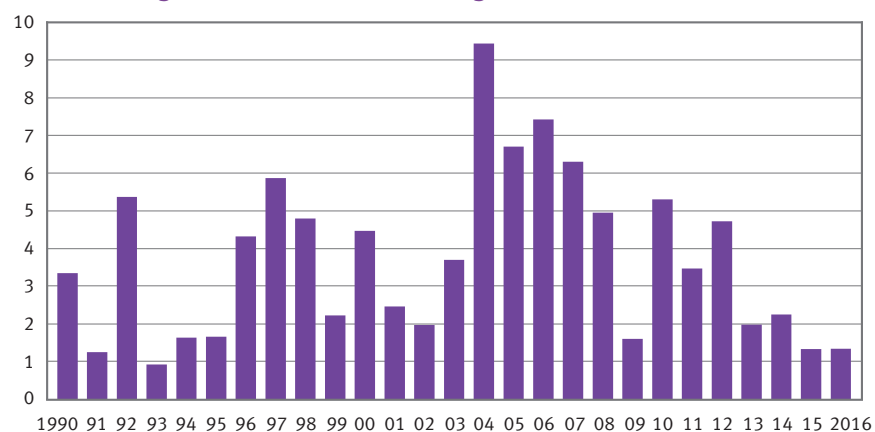
**Notes:**

Aggregates were compiled on the basis of 2011 GDP weights using 2011 purchasing power parities (PPP).

Graph 2.5

**Real GDP growth rates PPP based weights for total OPEC**

(%)



Graph 2.6

**Real GDP growth rates for OPEC Members**

(%)

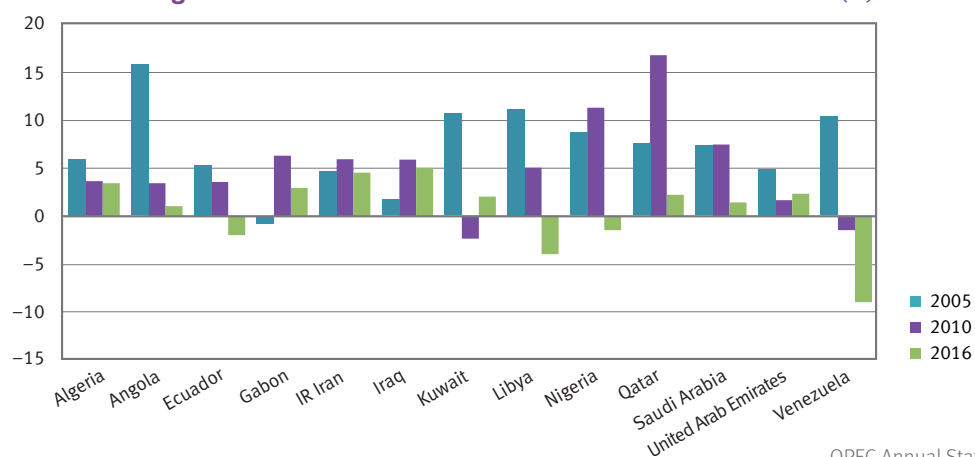


Table 2.4

**OPEC Members' values of exports**

(m \$)

	2012	2013	2014	2015	2016
Algeria	77,107	69,649	65,227	34,566	29,054
Angola	71,093	68,247	59,170	33,181	25,935
Ecuador	23,765	24,848	25,732	18,366	16,744
Gabon	10,331	9,715	9,346	6,473	5,871
IR Iran	131,305	140,562	102,796	76,793	97,386
Iraq	94,392	89,742	84,506	49,403	43,890
Kuwait	114,515	114,093	100,658	54,089	46,261
Libya	61,026	46,018	23,726	13,943	11,986
Nigeria	96,905	97,818	82,596	45,888	34,704
Qatar	142,485	144,115	139,845	92,038	72,459
Saudi Arabia	388,401	375,873	342,433	203,537	179,575
United Arab Emirates	359,728	371,028	343,085	300,496	298,653
Venezuela	97,877	88,753	74,714	37,236	26,473
<b>OPEC</b>	<b>1,668,929</b>	<b>1,640,459</b>	<b>1,453,833</b>	<b>966,007</b>	<b>888,990</b>

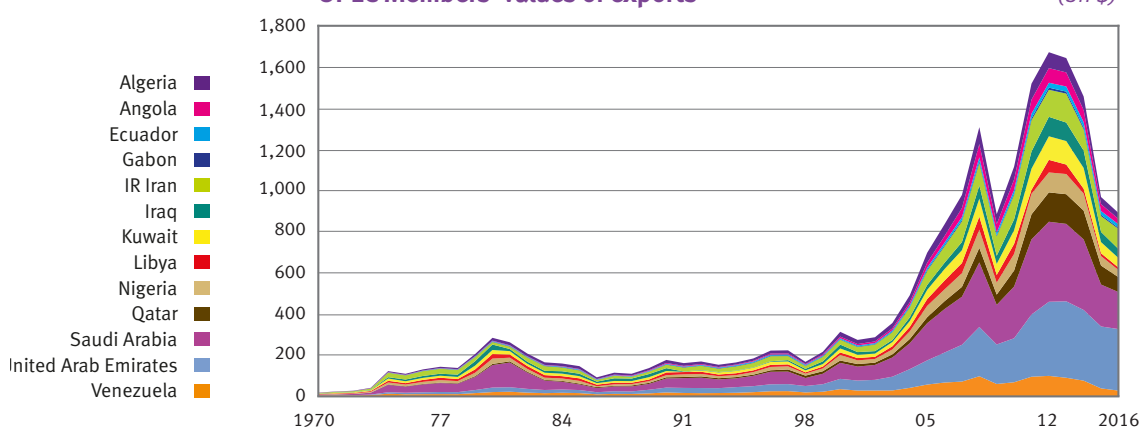
**Notes:**

All figures fob.

Graph 2.7

**OPEC Members' values of exports**

(bn \$)



Graph 2.8

**Values of exports as a share of total OPEC, 2016**

(%)

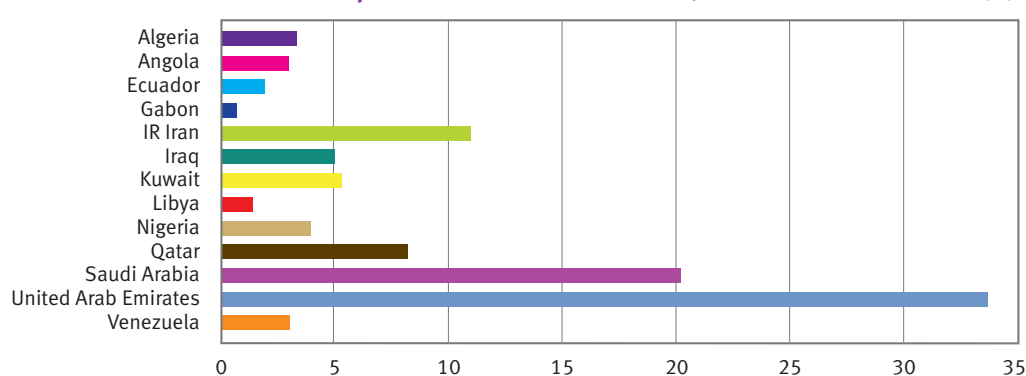


Table 2.5

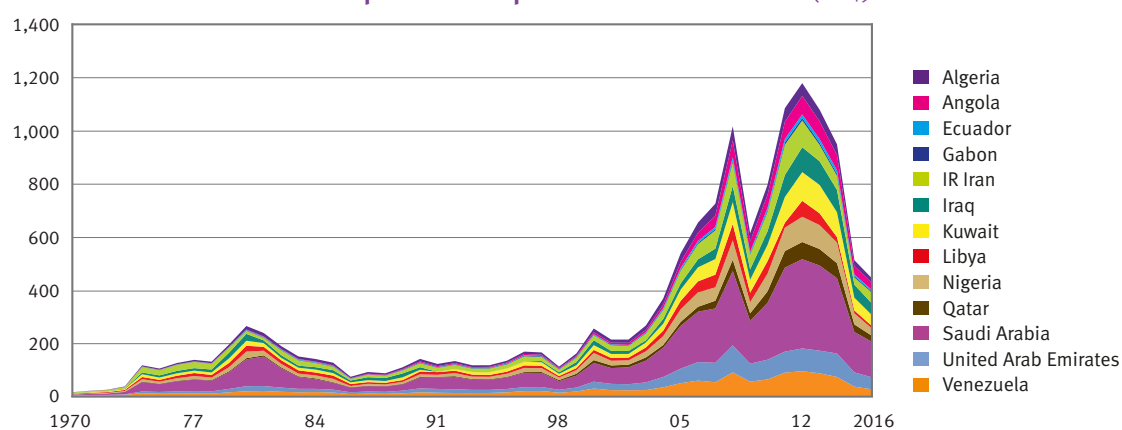
**OPEC Members' values of petroleum exports***(m \$)*

	2012	2013	2014	2015	2016
Algeria	48,271	44,462	40,628	21,742	18,638
Angola	69,954	66,652	57,250	31,929	25,935
Ecuador	13,792	14,107	13,276	6,660	5,442
Gabon	8,922	8,044	7,720	4,913	4,198
IR Iran	101,468	61,923	53,652	27,308	41,123
Iraq	94,090	89,359	84,303	49,249	43,753
Kuwait	108,534	107,543	94,324	48,444	41,461
Libya	60,188	44,445	20,357	10,973	9,313
Nigeria	95,620	90,546	78,053	41,818	27,788
Qatar	65,065	62,519	56,912	28,513	22,958
Saudi Arabia	337,480	321,888	284,558	152,910	134,373
United Arab Emirates	86,016	85,640	88,855	53,836	45,559
Venezuela	93,569	85,603	71,731	35,136	25,142
<b>OPEC</b>	<b>1,182,968</b>	<b>1,082,731</b>	<b>951,617</b>	<b>513,430</b>	<b>445,684</b>

**Notes:**

Where applicable, petroleum product exports are included. Data for some countries may include condensates, as well as other NGLs; some countries import substantial amounts of crude and products, resulting in lower net revenue from petroleum operations.

Graph 2.9

**OPEC Members' values of petroleum exports***(bn \$)*

Graph 2.10

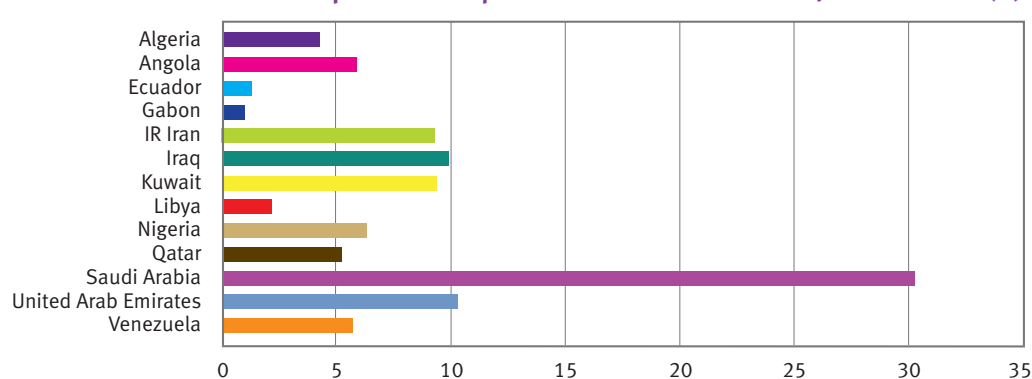
**Values of petroleum exports as a share of total OPEC, 2016***(%)*



Table 2.6  
OPEC Members' values of imports

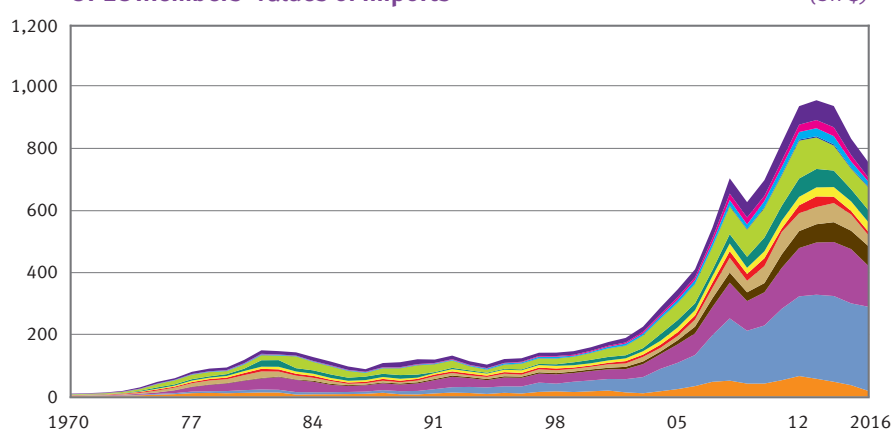
(m \$)

	2012	2013	2014	2015	2016
Algeria	59,600	63,758	68,306	52,649	49,437
Angola	23,704	26,331	28,580	20,693	12,515
Ecuador	24,205	25,889	26,445	20,458	15,618
Gabon	3,629	3,909	4,046	3,061	2,977
IR Iran	121,740	101,242	80,362	65,822	73,300
Iraq	59,006	59,349	53,177	39,045	38,713
Kuwait	27,268	29,293	31,035	30,952	30,830
Libya	25,590	34,050	20,430	11,236	11,012
Nigeria	57,396	55,301	61,594	52,335	35,240
Qatar	54,544	58,792	63,829	59,109	63,529
Saudi Arabia	155,593	168,155	173,834	174,675	131,433
United Arab Emirates	256,528	270,579	276,042	263,435	270,985
Venezuela	65,951	57,183	47,508	36,496	17,977
<b>OPEC</b>	<b>934,754</b>	<b>953,829</b>	<b>935,186</b>	<b>829,966</b>	<b>753,566</b>

Notes:  
All figures cif.

Graph 2.11  
OPEC Members' values of imports

(bn \$)



Graph 2.12  
Values of imports as a share of total OPEC, 2016

(%)

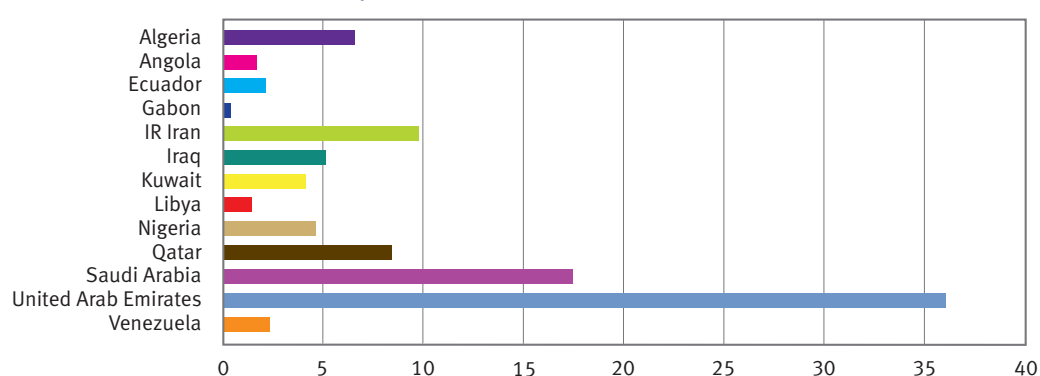


Table 2.7

## Current account balances in OPEC Members

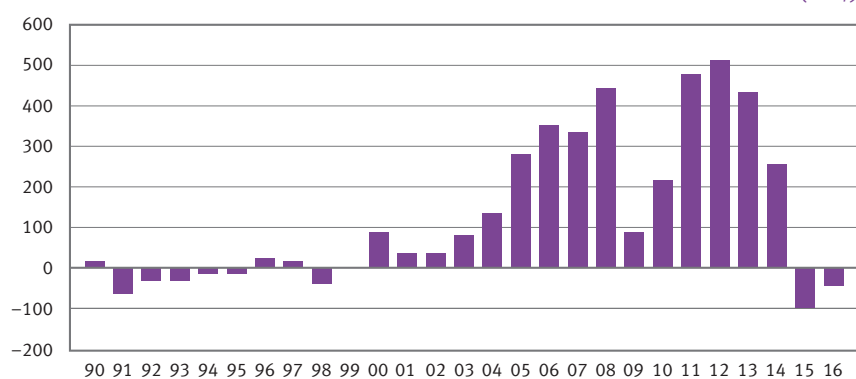
(m \$)

	2012	2013	2014	2015	2016
Algeria	12,418	999	-9,434	-27,476	-26,314
Angola	13,841	8,145	-3,748	-10,273	-4,929
Ecuador	-165	-968	-568	-2,201	1,109
Gabon	3,040	1,241	1,344	-779	-1,279
IR Iran	23,416	26,523	15,861	9,019	23,566
Iraq	29,542	22,591	24,428	3,672	-3,134
Kuwait	79,137	70,181	54,410	5,970	947
Libya	23,836	8,895	-11,662	-18,373	-13,491
Nigeria	17,516	19,205	907	-15,439	2,722
Qatar	62,000	60,461	49,410	13,751	-2,885
Saudi Arabia	164,764	135,442	73,758	-53,478	-24,914
United Arab Emirates	79,564	74,118	54,462	17,265	11,546
Venezuela	2,586	4,604	3,598	-20,360	-6,684
<b>OPEC</b>	<b>511,496</b>	<b>431,437</b>	<b>252,766</b>	<b>-98,701</b>	<b>-43,740</b>

Graph 2.13

## Current account balances in total OPEC

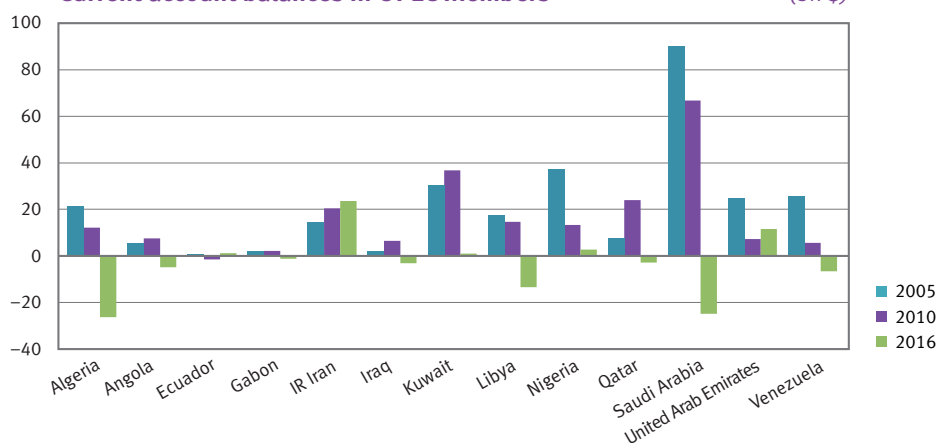
(bn \$)



Graph 2.14

## Current account balances in OPEC Members

(bn \$)





# SECTION 3

## Oil data: upstream



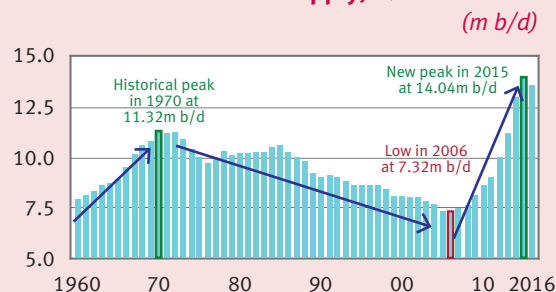
## A review of historical US crude oil production and liquid oil supply

Oil production in the US has a very long tradition going back to the early 19th century. As the Annual Statistical Bulletin provides oil supply data starting with the year 1960, this brief review focuses on the last 56 years.

One can distinguish between three phases of oil liquid supply (covering the production of crude oil, natural gas liquids and non-conventional oils such as biofuels) in the US (*see the figure on the right*). These phases are:

- Continuous production increase, a trend that started already far before the period under consideration, with its peak in the year 1970.
- Four decades of oil supply decline of more than 100,000 b/d on average annually.
- Sharp supply gains (of 750,000 b/d on average annually) following rapid developments in production from shale formations from 2006 onwards.

### Overview of US oil supply, 1960–2016



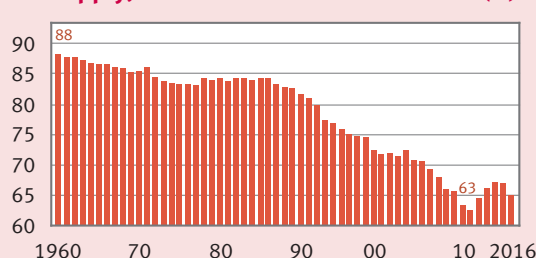
### Coefficient of simple linear regression model<sup>1</sup> (b/d)

1970–2006	–102,000
2006–2016	749,000

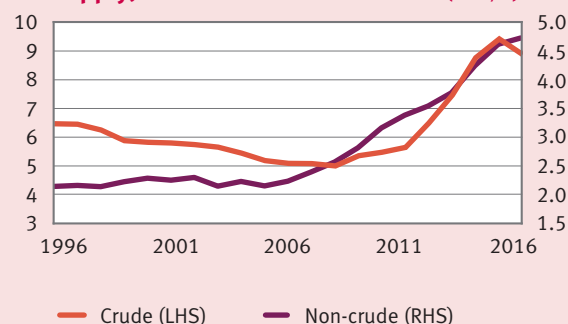
1. Slope coefficient of simple linear regression model with US supply as a dependent variable and the year as an independent variable.

In this regard, it is worth addressing the role of crude oil and the changes in the composition of oil supply over the years. Reference is thus made to the *figures below*. The *left-hand figure* shows the share of crude oil production in US oil supply, while the *right-hand figure* disaggregates US output in crude oil and non-crude production (for the last 20 years only).

### Share of crude oil production in US oil supply, 1960–2016



### US crude oil production vs non-crude oil supply, 1997–2016



As can be seen, the share of crude oil, which stood at 88 per cent in 1960, was constantly declining and bottomed out in the year 2011 at only 63 per cent. Since then, the share has been hovering between 64 and 67 per cent, implying that crude oil is only responsible for about two-thirds of supply, meaning the role of crude oil for US oil supply has become less important.

This development has been caused by the trend of declining crude oil production which predates the tight oil boom, as well as the steady increase of non-crude elements — such as natural gas liquids, notably from unconventional resources in recent years but also from biofuels.

As illustrated, production of non-crude elements was stable when crude oil production was still falling, and picked up earlier. This softened the decline in US oil supply before 2006 and pushed up the growth thereafter. Finally, another interesting aspect is that non-crude oil supply continued to increase in 2016, partly offsetting the steep drops in crude oil production.

Table 3.1  
World proven crude oil reserves by country

(m b)

	2012	2013	2014	2015	2016	% change 16/15
<b>North America</b>	<b>34,661.0</b>	<b>37,652.0</b>	<b>40,503.0</b>	<b>36,218.0</b>	<b>36,218.0</b>	<b>–</b>
Canada <sup>1</sup>	4,132.0	4,281.0	4,118.0	3,900.0	3,900.0	–
United States	30,529.0	33,371.0	36,385.0	32,318.0	32,318.0	–
<b>Latin America</b>	<b>338,356.0</b>	<b>341,522.0</b>	<b>341,296.0</b>	<b>342,549.0</b>	<b>339,645.0</b>	<b>–0.8</b>
Argentina	2,805.0	2,820.0	2,354.0	2,380.0	2,185.0	–8.2
Brazil	13,154.0	15,050.0	15,544.0	16,184.0	12,910.0	–20.2
Colombia	2,200.0	2,377.0	2,445.0	2,308.0	2,002.0	–13.3
Ecuador	8,235.0	8,832.0	8,273.0	8,273.0	8,273.0	–
Mexico	11,424.0	11,079.0	9,711.0	9,711.0	9,711.0	–
Venezuela	297,735.0	298,350.0	299,953.0	300,878.0	302,250.0	0.5
Others	2,803.0	3,014.0	3,016.0	2,815.0	2,314.0	–17.8
<b>Eastern Europe and Eurasia</b>	<b>119,881.0</b>	<b>119,874.0</b>	<b>119,863.0</b>	<b>119,860.0</b>	<b>119,856.0</b>	<b>–</b>
Azerbaijan	7,000.0	7,000.0	7,000.0	7,000.0	7,000.0	–
Belarus	198.0	198.0	198.0	198.0	198.0	–
Kazakhstan	30,000.0	30,000.0	30,000.0	30,000.0	30,000.0	–
Russia	80,000.0	80,000.0	80,000.0	80,000.0	80,000.0	–
Turkmenistan	600.0	600.0	600.0	600.0	600.0	–
Ukraine	395.0	395.0	395.0	395.0	395.0	–
Uzbekistan	594.0	594.0	594.0	594.0	594.0	–
Others	1,094.0	1,087.0	1,076.0	1,073.0	1,069.0	–0.4
<b>Western Europe</b>	<b>10,800.0</b>	<b>11,337.0</b>	<b>10,761.0</b>	<b>10,064.0</b>	<b>11,353.0</b>	<b>12.8</b>
Denmark	805.0	805.0	611.0	511.0	491.0	–3.9
Norway	5,366.0	5,825.0	5,497.0	5,139.0	6,610.0	28.6
United Kingdom	2,800.0	2,979.0	2,982.0	2,755.0	2,564.0	–6.9
Others	1,829.0	1,727.0	1,670.0	1,660.0	1,688.0	1.7
<b>Middle East</b>	<b>799,132.0</b>	<b>802,958.0</b>	<b>802,512.0</b>	<b>802,848.0</b>	<b>807,730.0</b>	<b>0.6</b>
IR Iran	157,300.0	157,800.0	157,530.0	158,400.0	157,200.0	–0.8
Iraq	140,300.0	144,211.0	143,069.0	142,503.0	148,766.0	4.4
Kuwait	101,500.0	101,500.0	101,500.0	101,500.0	101,500.0	–
Oman	5,500.0	4,974.0	5,151.0	5,306.0	5,373.0	1.3
Qatar	25,244.0	25,244.0	25,244.0	25,244.0	25,244.0	–
Saudi Arabia	265,850.0	265,789.0	266,578.0	266,455.0	266,208.0	–0.1
Syrian Arab Republic	2,500.0	2,500.0	2,500.0	2,500.0	2,500.0	–
United Arab Emirates	97,800.0	97,800.0	97,800.0	97,800.0	97,800.0	–
Others	3,138.0	3,139.0	3,140.0	3,140.0	3,139.0	–
<b>Africa</b>	<b>128,291.0</b>	<b>128,070.0</b>	<b>127,254.0</b>	<b>127,969.0</b>	<b>128,359.0</b>	<b>0.3</b>
Algeria	12,200.0	12,200.0	12,200.0	12,200.0	12,200.0	–
Angola	9,055.0	9,011.0	8,423.0	9,524.0	9,523.0	–
Egypt	4,400.0	4,400.0	4,400.0	4,400.0	4,400.0	–
Gabon	2,000.0	2,000.0	2,000.0	2,000.0	2,000.0	–
Libya	48,472.0	48,363.0	48,363.0	48,363.0	48,363.0	–
Nigeria	37,139.0	37,071.0	37,448.0	37,062.0	37,453.0	1.1
Sudans	5,000.0	5,000.0	5,000.0	5,000.0	5,000.0	–
Others	10,025.0	10,025.0	9,420.0	9,420.0	9,420.0	–
<b>Asia and Pacific</b>	<b>47,552.0</b>	<b>47,860.0</b>	<b>48,197.0</b>	<b>48,385.0</b>	<b>49,003.0</b>	<b>1.3</b>
Australia	3,922.0	3,957.0	3,982.0	3,982.0	3,985.0	0.1
Brunei	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	–
China	24,428.0	24,376.0	24,649.0	25,132.0	25,620.0	1.9
India	5,571.0	5,643.0	5,675.0	5,680.0	5,749.0	1.2
Indonesia	3,291.0	3,303.0	3,303.0	3,230.0	3,230.0	–
Malaysia	3,668.0	3,750.0	3,750.0	3,600.0	3,600.0	–
Vietnam	4,400.0	4,400.0	4,400.0	4,400.0	4,400.0	–
Others	1,172.0	1,331.0	1,338.0	1,261.0	1,319.0	4.6
<b>Total world</b>	<b>1,478,673.0</b>	<b>1,489,272.0</b>	<b>1,490,386.0</b>	<b>1,487,893.0</b>	<b>1,492,164.0</b>	<b>0.3</b>
<i>of which</i>						
OPEC	1,202,830.0	1,208,171.0	1,208,382.0	1,210,202.0	1,216,780.0	0.5
<i>OPEC percentage</i>	<i>81.3</i>	<i>81.1</i>	<i>81.1</i>	<i>81.3</i>	<i>81.5</i>	
OECD	61,153.0	64,367.0	65,277.0	60,289.0	61,569.0	2.1
FSU	118,886.0	118,886.0	118,886.0	118,886.0	118,886.0	–

Notes: Figures as at year-end.

1. Data excludes oil sands.



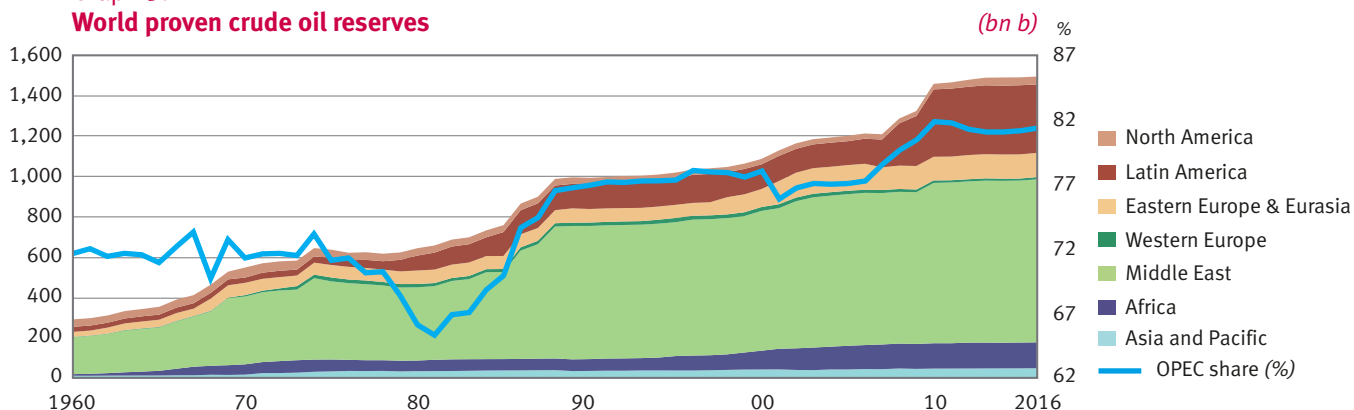
Table 3.2  
Active rigs by country

	2012	2013	2014	2015	2016	change 16/15
<b>North America</b>	<b>2,137</b>	<b>2,146</b>	<b>2,255</b>	<b>855</b>	<b>843</b>	<b>-12</b>
Canada	353	372	374	144	209	65
United States	1,784	1,774	1,881	711	634	-77
<b>Latin America</b>	<b>517</b>	<b>550</b>	<b>553</b>	<b>389</b>	<b>270</b>	<b>-119</b>
Argentina	75	94	113	91	59	-32
Bolivia	9	11	6	5	5	-
Brazil	71	54	42	38	13	-25
Colombia	39	45	46	12	19	7
Ecuador	44	50	41	7	7	-
Mexico	114	98	72	42	19	-23
Trinidad & Tobago	5	3	3	7	3	-4
Venezuela	149	186	221	182	138	-44
Others	11	9	9	5	7	2
<b>Eastern Europe and Eurasia</b>	<b>428</b>	<b>410</b>	<b>420</b>	<b>427</b>	<b>438</b>	<b>11</b>
Azerbaijan	14	14	17	17	17	-
Kazakhstan	60	59	57	57	57	-
Poland	15	12	12	12	12	-
Romania	10	12	17	18	18	-
Russia	320	304	307	311	322	11
Turkmenistan	9	9	10	12	12	-
Others	-	-	-	-	-	-
<b>Western Europe</b>	<b>136</b>	<b>126</b>	<b>148</b>	<b>114</b>	<b>99</b>	<b>-15</b>
Germany	6	4	3	6	4	-2
Italy	5	4	4	3	4	1
Netherlands	9	5	10	4	2	-2
Norway	25	14	14	17	16	-1
United Kingdom	21	12	20	9	11	2
Others	70	87	97	75	62	-13
<b>Middle East</b>	<b>518</b>	<b>535</b>	<b>505</b>	<b>529</b>	<b>566</b>	<b>37</b>
IR Iran	133	138	135	130	153	23
Iraq	92	83	69	65	44	-21
Kuwait	31	31	45	58	58	-
Oman	43	65	57	73	59	-14
Qatar	6	5	6	6	10	4
Saudi Arabia	148	148	145	145	161	16
Syrian Arab Republic	27	22	11	-	-	-
United Arab Emirates	26	30	30	51	79	28
Yemen	4	6	3	-	-	-
Others	8	7	4	1	2	1
<b>Africa</b>	<b>209</b>	<b>265</b>	<b>265</b>	<b>205</b>	<b>129</b>	<b>-76</b>
Algeria	38	49	49	49	52	3
Angola	27	28	37	30	10	-20
Egypt	48	52	52	44	24	-20
Gabon	6	6	7	2	-	-2
Libya	23	31	31	31	17	-14
Nigeria	44	59	46	29	9	-20
Others	23	40	43	20	17	-3
<b>Asia and Pacific</b>	<b>1,110</b>	<b>1,130</b>	<b>1,113</b>	<b>1,099</b>	<b>1,020</b>	<b>-79</b>
Australia	23	18	18	16	9	-7
China	827	827	823	824	775	-49
India	114	121	114	100	116	16
Indonesia	84	92	92	104	73	-31
Malaysia	13	12	8	5	4	-1
New Zealand	6	8	6	-	-	-
Pakistan	21	21	19	23	21	-2
Others	22	31	33	27	22	-5
<b>Total world</b>	<b>5,055</b>	<b>5,162</b>	<b>5,259</b>	<b>3,618</b>	<b>3,365</b>	<b>-253</b>
<i>of which</i>						
OPEC	767	844	862	785	738	-47
<i>OPEC percentage</i>	<i>15.2</i>	<i>16.4</i>	<i>16.4</i>	<i>21.7</i>	<i>21.9</i>	
OECD	2,391	2,367	2,466	999	954	-45
FSU	428	410	420	427	438	11

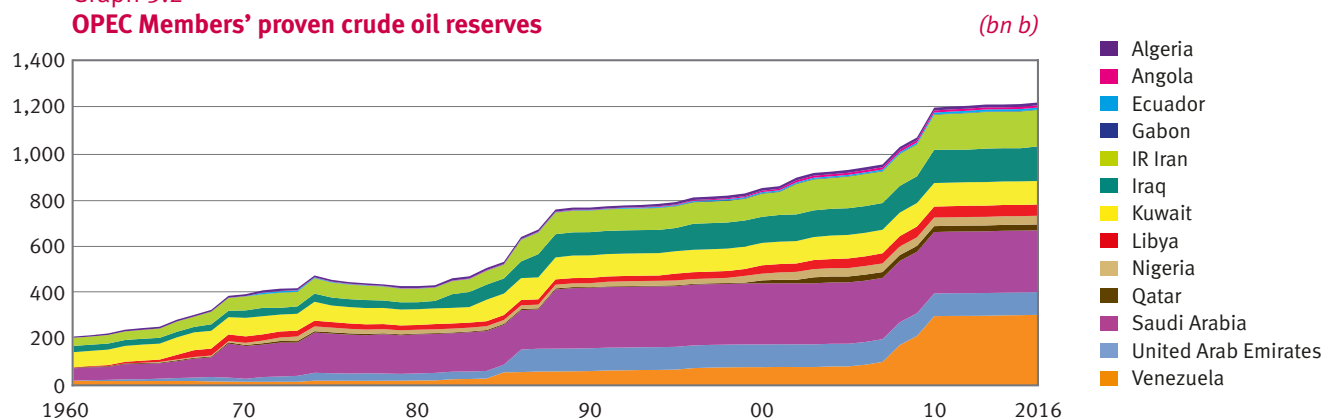
**Notes:**

Figure as at year end.

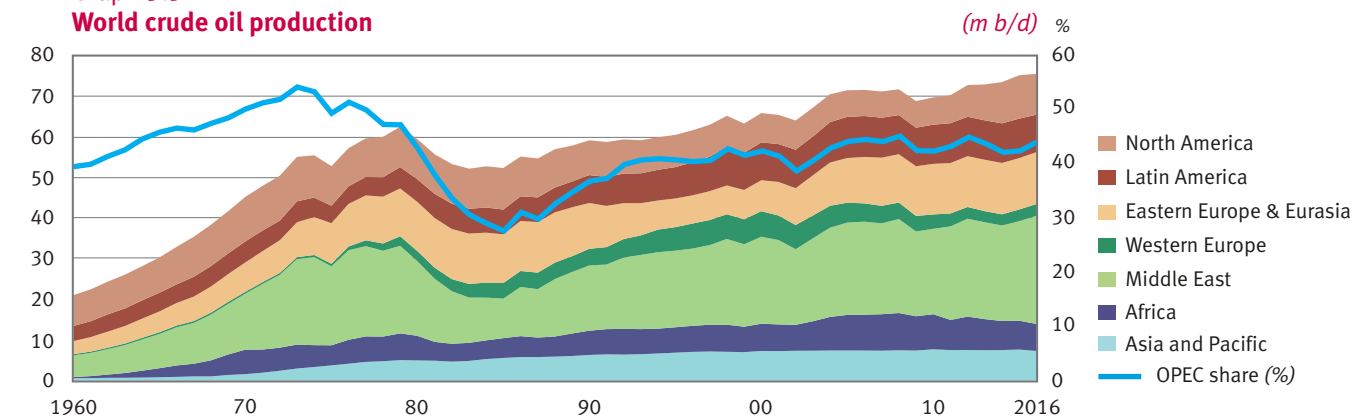
Graph 3.1  
World proven crude oil reserves



Graph 3.2  
OPEC Members' proven crude oil reserves



Graph 3.3  
World crude oil production



Graph 3.4  
OPEC Members' crude oil production

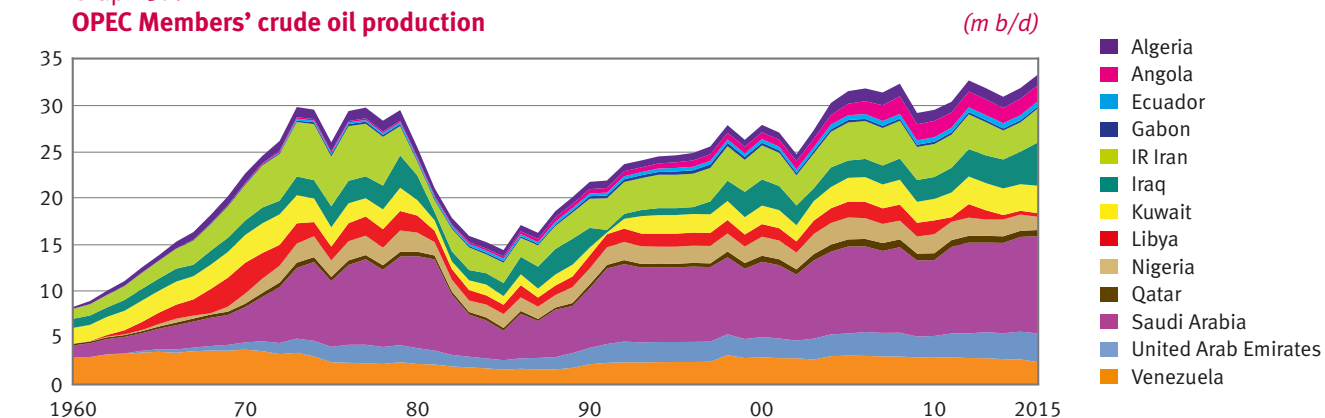


Table 3.3  
Wells completed in OPEC Members

	2012	2013	2014	2015	2016	change 16/15
Algeria	258	191	215	250	292	42
Angola	127	115	87	92	67	-25
Ecuador	268	316	327	210	86	-124
Gabon	43	45	51	38	14	-24
IR Iran	323	321	306	288	206	-82
Iraq	228	313	281	154	131	-23
Kuwait <sup>1</sup>	533	590	596	622	622	—
Libya	68	106	162	35	14	-21
Nigeria	107	114	141	116	76	-40
Qatar	87	88	99	77	27	-50
Saudi Arabia <sup>1</sup>	362	429	538	616	622	6
United Arab Emirates	304	277	292	219	271	52
Venezuela	788	415	669	635	171	-464
<b>OPEC</b>	<b>3,496</b>	<b>3,320</b>	<b>3,764</b>	<b>3,352</b>	<b>2,599</b>	<b>-753</b>
<b>Total world</b>	<b>101,757</b>	<b>104,888</b>	<b>101,670</b>	<b>71,308</b>	<b>51,008</b>	<b>-20,300</b>

Notes:

1. Figures include share of wells completed from Neutral Zone.

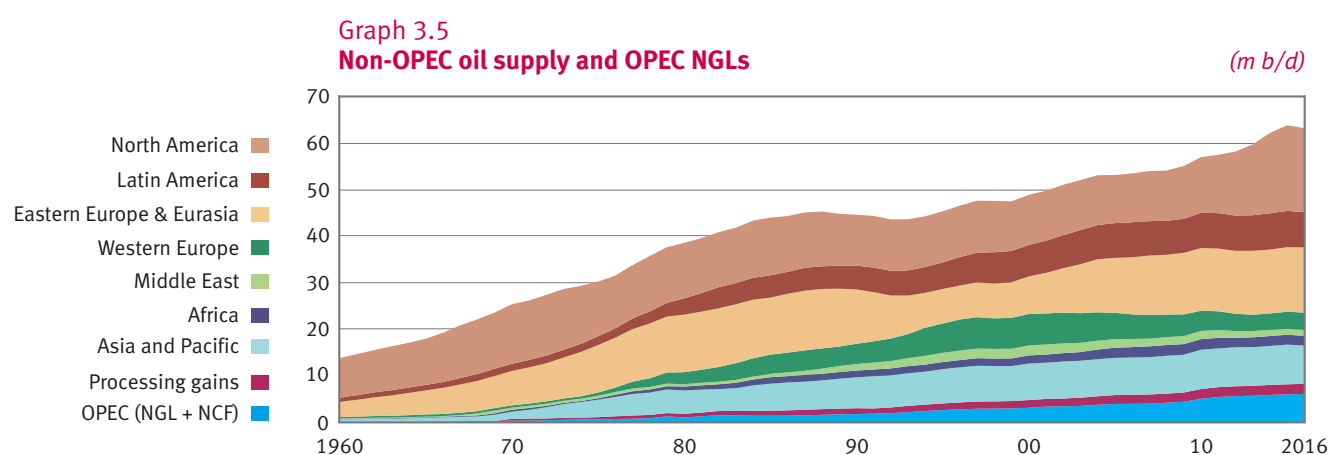


Table 3.4  
Producing wells in OPEC Members

	2012	2013	2014	2015	2016	change 16/15
Algeria	2,061	2,061	2,042	1,968	1,936	-32
Angola	1,554	1,554	1,509	1,593	1,572	-21
Ecuador	3,177	3,414	3,592	3,483	3,496	13
Gabon	397	397	398	397	396	-1
IR Iran	2,119	2,204	2,281	2,339	2,886	547
Iraq	1,700	1,735	1,963	2,361	2,629	268
Kuwait <sup>1</sup>	1,831	1,794	1,760	1,731	1,780	49
Libya	1,910	1,308	632	540	521	-19
Nigeria	2,168	1,951	2,010	1,947	1,668	-279
Qatar	517	511	500	467	460	-7
Saudi Arabia <sup>1</sup>	3,407	3,372	3,406	3,555	3,648	93
United Arab Emirates	1,640	1,722	1,735	1,792	1,835	43
Venezuela	14,959	14,809	14,710	14,685	13,395	-1,290
<b>OPEC</b>	<b>37,440</b>	<b>36,832</b>	<b>36,538</b>	<b>36,858</b>	<b>36,222</b>	<b>-636</b>
<b>Total world</b>	<b>981,598</b>	<b>981,696</b>	<b>1,060,232</b>	<b>1,113,243</b>	<b>1,102,111</b>	<b>-11,132</b>

**Notes:**

Excluding shut-in wells.

1. Figures include share of producing wells from Neutral Zone.

Table 3.5  
Daily and cumulative crude oil production in OPEC Members

(1,000 b)

## Daily crude oil production

(average)

	1960	1970	1980	1990	2000	2016
Algeria	181.1	1,029.1	1,019.9	783.5	796.0	1,146.3
Angola	1.1	83.9	150.0	473.8	736.1	1,721.6
Ecuador	7.5	4.1	204.1	286.1	392.2	549.0
Gabon	15.4	108.8	174.5	274.4	282.8	220.2
IR Iran	1,067.7	3,829.0	1,467.4	3,135.3	3,661.3	3,651.3
Iraq	972.2	1,548.6	2,646.4	2,112.6	2,810.0	4,647.8
Kuwait <sup>1</sup>	1,691.8	2,989.6	1,663.7	858.6	1,996.1	2,954.3
Libya	–	3,318.0	1,831.6	1,389.1	1,347.2	390.2
Nigeria	17.4	1,083.1	2,058.0	1,726.7	2,053.6	1,427.3
Qatar	174.6	362.4	471.4	405.6	648.2	651.5
Saudi Arabia <sup>1</sup>	1,313.5	3,799.1	9,900.5	6,412.5	8,094.5	10,460.2
United Arab Emirates	–	779.6	1,701.9	1,762.6	2,174.7	3,088.3
Venezuela	2,846.1	3,708.0	2,165.0	2,135.2	2,891.0	2,372.5
<b>OPEC</b>	<b>8,288.4</b>	<b>22,643.3</b>	<b>25,454.4</b>	<b>21,756.0</b>	<b>27,883.6</b>	<b>33,280.5</b>

## Cumulative crude oil production up to and including year

	1960	1970	1980	1990	2000	2016
Algeria	81,372	2,569,469	6,404,548	8,974,340	11,837,030	18,658,344
Angola	1,127	76,423	623,359	1,681,478	3,972,081	12,532,233
Ecuador	2,745	26,191	617,927	1,526,131	2,843,162	5,708,839
Gabon	15,674	195,732	870,019	1,507,592	2,691,226	4,120,426
IR Iran	4,167,717	12,357,977	29,969,896	38,410,483	51,367,070	72,756,193
Iraq	2,750,439	7,476,078	15,826,156	22,246,208	26,918,241	41,845,043
Kuwait <sup>1</sup>	4,333,049	13,028,906	21,993,164	25,857,094	32,092,887	46,846,867
Libya	–	5,476,384	12,810,843	16,929,582	21,993,272	29,132,150
Nigeria	12,318	1,138,896	8,389,456	13,656,562	20,572,881	32,094,498
Qatar	451,617	1,428,583	3,199,374	4,334,808	6,032,088	10,255,952
Saudi Arabia <sup>1</sup>	4,345,242	13,283,848	42,306,785	61,814,608	91,266,532	143,970,919
United Arab Emirates	–	1,160,471	7,164,231	11,921,927	19,785,670	34,434,521
Venezuela	13,865,487	26,301,976	36,046,663	42,528,079	51,772,971	68,275,979
<b>OPEC</b>	<b>30,026,786</b>	<b>84,520,933</b>	<b>186,222,420</b>	<b>251,388,891</b>	<b>343,145,109</b>	<b>520,631,961</b>

## Notes:

1. Figures include share of production from Neutral Zone.

Table 3.6  
World crude oil production by country

(1,000 b/d)

	2012	2013	2014	2015	2016	% change 16/15
<b>North America</b>	<b>7,795.3</b>	<b>8,849.3</b>	<b>10,163.6</b>	<b>10,678.6</b>	<b>10,060.5</b>	<b>-5.8</b>
Canada	1,308.5	1,381.6	1,399.8	1,263.4	1,185.8	-6.1
United States	6,486.8	7,467.7	8,763.7	9,415.2	8,874.6	-5.7
<b>Latin America</b>	<b>9,701.3</b>	<b>9,698.3</b>	<b>9,740.7</b>	<b>9,714.5</b>	<b>9,222.3</b>	<b>-5.1</b>
Argentina	549.3	540.0	532.2	532.3	511.7	-3.9
Brazil	2,061.3	2,023.9	2,254.6	2,437.3	2,510.0	3.0
Chile	6.1	6.7	6.6	5.0	4.2	-16.6
Colombia	944.2	1,008.2	990.3	1,005.6	883.3	-12.2
Ecuador	503.6	526.4	556.6	543.1	549.0	1.1
Mexico	2,547.9	2,522.2	2,428.9	2,266.8	2,153.5	-5.0
Peru	66.6	62.8	69.3	58.0	40.3	-30.6
Trinidad & Tobago	81.7	81.2	81.2	78.6	71.5	-9.1
Venezuela	2,803.9	2,789.5	2,682.6	2,653.9	2,372.5	-10.6
Others	136.7	137.7	138.4	133.9	126.5	-5.5
<b>Eastern Europe and Eurasia</b>	<b>12,507.4</b>	<b>12,659.6</b>	<b>12,649.9</b>	<b>12,654.6</b>	<b>12,765.5</b>	<b>0.9</b>
Azerbaijan	817.2	814.7	793.1	786.7	769.8	-2.1
Kazakhstan	1,306.5	1,372.8	1,344.8	1,321.6	1,295.0	-2.0
Romania	82.0	82.1	80.2	78.8	75.5	-4.2
Russia	9,953.3	10,047.3	10,087.5	10,111.1	10,292.2	1.8
Turkmenistan	187.3	180.4	185.9	206.2	189.6	-8.1
Ukraine	46.0	43.7	40.7	36.2	32.3	-10.6
Others	115.1	118.6	117.5	114.0	111.1	-2.5
<b>Western Europe</b>	<b>2,888.2</b>	<b>2,724.2</b>	<b>2,750.3</b>	<b>2,892.9</b>	<b>2,919.9</b>	<b>0.9</b>
Denmark	201.9	176.0	164.9	156.0	140.1	-10.2
France	16.3	16.0	15.3	16.7	16.5	-1.0
Germany	51.1	51.8	48.1	48.1	46.3	-3.8
Italy	101.0	101.6	106.3	100.1	70.7	-29.4
Netherlands	21.6	21.6	29.7	26.9	17.8	-33.6
Norway	1,532.8	1,463.6	1,511.8	1,567.4	1,615.5	3.1
Turkey	44.8	46.2	47.7	48.5	49.5	2.0
United Kingdom	868.6	796.1	776.0	879.7	914.8	4.0
Others	50.2	51.3	50.4	49.5	48.7	-1.5
<b>Middle East</b>	<b>24,106.5</b>	<b>23,845.3</b>	<b>23,510.9</b>	<b>24,494.3</b>	<b>26,608.4</b>	<b>8.6</b>
Bahrain	173.0	197.6	202.5	202.6	205.0	1.2
IR Iran	3,739.8	3,575.3	3,117.1	3,151.6	3,651.3	15.9
Iraq	2,942.4	2,979.6	3,110.5	3,504.1	4,647.8	32.6
Kuwait <sup>1</sup>	2,977.6	2,924.7	2,866.8	2,858.7	2,954.3	3.3
Oman	813.5	844.3	856.1	885.2	908.7	2.7
Qatar	733.6	723.9	709.2	656.0	651.5	-0.7
Saudi Arabia <sup>1</sup>	9,763.0	9,637.0	9,712.7	10,192.6	10,460.2	2.6
Syrian Arab Republic	151.6	45.3	22.8	18.7	17.1	-8.4
United Arab Emirates	2,653.0	2,796.5	2,794.0	2,988.9	3,088.3	3.3
Yemen	159.2	121.0	119.2	36.0	24.2	-32.7
<b>Africa</b>	<b>8,216.5</b>	<b>7,638.9</b>	<b>7,159.5</b>	<b>7,094.8</b>	<b>6,660.1</b>	<b>-6.1</b>
Algeria	1,199.8	1,202.6	1,192.8	1,157.1	1,146.3	-0.9
Angola	1,704.0	1,701.2	1,653.7	1,767.1	1,721.6	-2.6
Congo	294.5	280.7	266.2	266.7	306.0	14.8
Egypt	570.3	567.6	573.9	579.4	544.4	-6.0
Equatorial Guinea	238.8	223.1	236.9	245.3	236.3	-3.7
Gabon	241.6	226.4	225.9	224.7	220.2	-2.0
Libya	1,450.0	993.3	479.9	404.3	390.2	-3.5
Nigeria	1,954.1	1,753.7	1,807.0	1,748.2	1,427.3	-18.4
Sudans	119.3	232.3	285.6	278.6	264.5	-5.1
Others	444.1	457.9	437.6	423.5	403.3	-4.8
<b>Asia and Pacific</b>	<b>7,484.3</b>	<b>7,446.2</b>	<b>7,460.9</b>	<b>7,593.6</b>	<b>7,240.1</b>	<b>-4.7</b>
Australia	405.4	334.7	353.4	322.2	289.3	-10.2
Brunei	145.7	122.1	114.4	115.3	109.1	-5.4
China	4,074.2	4,163.8	4,208.3	4,288.9	3,981.8	-7.2
India	759.7	755.8	752.8	746.8	720.8	-3.5
Indonesia	763.4	727.2	697.3	690.1	739.5	7.2
Malaysia	585.4	594.5	614.7	662.0	670.0	1.2
New Zealand	41.1	35.4	39.5	41.3	34.7	-15.9
Others	709.5	712.8	680.4	726.9	694.7	-4.4
<b>Total world</b>	<b>72,699.4</b>	<b>72,861.8</b>	<b>73,435.7</b>	<b>75,123.3</b>	<b>75,476.7</b>	<b>0.5</b>
<i>of which</i>						
OPEC	32,666.3	31,830.2	30,908.7	31,850.2	33,280.5	4.5
<i>OPEC percentage</i>	<i>44.9</i>	<i>43.7</i>	<i>42.1</i>	<i>42.4</i>	<i>44.1</i>	
OECD	13,689.7	14,485.6	15,754.9	16,217.0	15,474.7	-4.6
FSU	12,376.6	12,521.8	12,511.1	12,517.1	12,629.9	0.9

## Notes:

1. Figures include share of production from Neutral Zone.

Table 3.7  
Non-OPEC oil supply and OPEC NGLs

(1,000 b/d)

	2012	2013	2014	2015	2016	% change 16/15
<b>North America</b>	<b>13,812.5</b>	<b>15,283.3</b>	<b>17,328.6</b>	<b>18,460.9</b>	<b>18,122.6</b>	<b>-1.8</b>
Canada	3,779.1	4,038.0	4,312.4	4,419.8	4,501.7	1.9
United States	10,033.4	11,245.3	13,016.3	14,041.1	13,620.8	-3.0
<b>Latin America</b>	<b>7,596.6</b>	<b>7,659.7</b>	<b>7,818.3</b>	<b>7,808.8</b>	<b>7,573.5</b>	<b>-3.0</b>
Argentina	708.3	684.0	692.5	682.1	677.5	-0.7
Brazil	2,567.9	2,602.5	2,859.2	3,079.7	3,141.0	2.0
Chile	11.4	10.4	8.7	5.9	5.3	-9.8
Colombia	965.2	1,030.2	1,013.3	1,029.6	906.3	-12.0
Mexico	2,922.5	2,892.2	2,801.2	2,598.8	2,464.5	-5.2
Peru	153.1	167.3	172.9	149.4	135.1	-9.5
Trinidad & Tobago	116.5	115.4	112.1	108.4	96.2	-11.3
Others	151.7	157.7	158.4	154.9	147.5	-4.8
<b>Eastern Europe and Eurasia</b>	<b>13,565.6</b>	<b>13,772.1</b>	<b>13,763.1</b>	<b>13,909.1</b>	<b>14,064.5</b>	<b>1.1</b>
Azerbaijan	883.5	891.5	866.2	860.1	849.1	-1.3
Kazakhstan	1,586.4	1,642.7	1,623.5	1,596.3	1,562.5	-2.1
Romania	86.0	85.1	82.9	80.8	77.5	-4.1
Russia	10,491.8	10,635.3	10,675.4	10,846.3	11,083.2	2.2
Turkmenistan	213.3	209.4	217.9	238.3	221.7	-7.0
Ukraine	75.1	69.2	60.3	54.0	50.5	-6.5
Others	229.5	239.1	236.9	233.3	220.1	-5.7
<b>Western Europe</b>	<b>3,724.3</b>	<b>3,517.1</b>	<b>3,536.6</b>	<b>3,694.7</b>	<b>3,732.6</b>	<b>1.0</b>
Denmark	203.9	180.0	168.9	160.0	143.1	-10.6
France	94.3	90.5	89.8	91.0	90.6	-0.5
Germany	149.9	145.2	141.2	141.4	143.5	1.5
Italy	144.7	144.3	140.8	142.8	107.1	-25.0
Netherlands	48.1	54.2	49.7	48.0	35.2	-26.6
Norway	1,917.1	1,837.7	1,888.6	1,947.6	1,994.4	2.4
Turkey	44.8	46.2	47.7	48.5	49.5	2.0
United Kingdom	956.0	874.7	868.3	968.8	1,025.3	5.8
Others	165.4	144.4	141.7	146.6	143.9	-1.8
<b>Middle East</b>	<b>1,469.0</b>	<b>1,361.1</b>	<b>1,338.8</b>	<b>1,273.0</b>	<b>1,278.5</b>	<b>0.4</b>
Bahrain	195.0	218.6	223.5	223.6	225.0	0.6
Oman	918.6	942.1	943.3	981.2	1,004.2	2.3
Syrian Arab Republic	176.6	59.5	32.8	26.7	25.1	-5.9
Yemen	178.7	141.0	139.2	41.6	24.2	-41.8
<b>Africa</b>	<b>2,024.1</b>	<b>2,118.1</b>	<b>2,130.5</b>	<b>2,133.2</b>	<b>2,099.3</b>	<b>-1.6</b>
Congo	294.5	280.7	266.2	266.7	306.0	14.8
Egypt	711.3	706.6	706.9	722.4	690.7	-4.4
Equatorial Guinea	282.7	267.0	280.8	289.2	280.2	-3.1
Sudans	119.3	232.3	285.6	278.6	264.5	-5.1
Others	616.3	631.5	591.0	576.4	557.8	-3.2
<b>Asia and Pacific</b>	<b>8,409.5</b>	<b>8,346.7</b>	<b>8,398.9</b>	<b>8,552.1</b>	<b>8,225.1</b>	<b>-3.8</b>
Australia	475.4	401.4	428.3	379.4	349.1	-8.0
Brunei	158.6	135.3	126.7	126.8	120.9	-4.6
China	4,158.1	4,250.2	4,302.3	4,387.9	4,081.8	-7.0
India	875.5	870.4	867.3	867.6	851.5	-1.9
Indonesia	944.1	904.3	865.2	874.1	932.1	6.6
Malaysia	659.4	648.0	685.7	736.0	746.0	1.4
New Zealand	45.6	41.4	46.6	48.0	39.5	-17.7
Others	1,092.8	1,095.7	1,076.8	1,132.3	1,104.2	-2.5
<b>Non-OPEC production</b>	<b>50,601.5</b>	<b>52,058.2</b>	<b>54,315.0</b>	<b>55,831.9</b>	<b>55,096.0</b>	<b>-1.3</b>
Processing gains	2,127.0	2,128.0	2,159.0	2,172.0	2,184.0	0.6
<b>Non-OPEC supply</b>	<b>52,728.5</b>	<b>54,186.2</b>	<b>56,474.0</b>	<b>58,003.9</b>	<b>57,280.0</b>	<b>-1.2</b>
OPEC NGL	5,366.4	5,416.5	5,568.7	5,679.2	5,813.8	2.4
OPEC non-conventional (NCF)	200.3	232.0	260.0	263.3	237.3	-9.9
<b>OPEC (NGL+NCF)</b>	<b>5,566.7</b>	<b>5,648.5</b>	<b>5,828.7</b>	<b>5,942.5</b>	<b>6,051.0</b>	<b>1.8</b>
<b>Non-OPEC &amp; OPEC (NGL+NCF)</b>	<b>58,295.1</b>	<b>59,834.7</b>	<b>62,302.7</b>	<b>63,946.4</b>	<b>63,331.1</b>	<b>-1.0</b>
<i>of which</i>						
OECD	21,096.0	22,259.0	24,262.0	25,300.5	24,820.1	-1.9
FSU	13,360.4	13,555.9	13,546.3	13,693.2	13,860.9	1.2







## SECTION 4

### Oil data: downstream





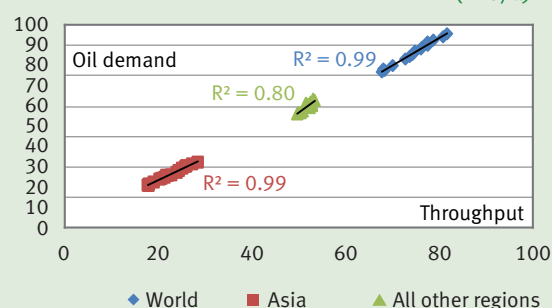
## Downstream dynamics in Asia and their importance to the oil market

Global oil demand continued to grow in 2016 at a slower rate at 1.5 per cent as compared to the growth in 2015 of around 1.8 per cent. Geographically, Asia and Pacific remained the main source of oil demand growth in 2016 with India, China and South Korea being the main drivers. Western Europe, Eastern Europe as well as Eurasia have also registered substantial growth in 2016. North America and Middle East oil demand growth slowed down slightly while Latin American oil demand continued to decline. Considering the petroleum derivatives, the light end of the barrel — gasoline, LPG and jet/kerosene — supported global oil demand growth while fuel oil remained weak. In Asia and Pacific, particularly, oil demand remained bullish, with 2016 gasoline demand in Asia and Pacific increasing by more than six per cent, kerosene by roughly five per cent and other petroleum products including LPG and naphtha increased by approximately three per cent while fuel oil demand shrank by almost three per cent compared to 2015. India, China and South Korea continued to grow in a wide range of petroleum products. Petroleum demand in India and South Korea increased by eight per cent and six per cent, respectively, in 2016 compared to 2015, while it also increased in China, Thailand, New Zealand, to name a few countries.

As result of strong world oil demand growth in 2016, world refining capacity also increased but at a slower rate compared to previous years. Despite the deceleration of global downstream activities in 2016, world refining capacity inched up by almost 0.5m b/cd as compared to 2015. The 2016 global refining capacity gains have mainly originated from North America and the Middle East. North American refining capacity increased, particularly in the United States where it rose by 0.3m b/cd. The Middle East also registered a growth of 0.3m b/cd of condensate splitters. Asian and Pacific refinery capacity growth slowed down strongly in 2016, despite increases in South Korea and in China, which were partly offset by declines in Japan. Western Europe refining capacity declined again in 2016 as result of continuing closures in France and the UK. Global refinery throughput slowed down this year compared to last year as a result of gains in oil prices and high global oil stocks. Asia and Pacific and the Middle East registered a strong growth in throughput in 2016. All other regions weakened in 2016 except North America which experienced small growth. Global refinery output followed the same trend as global refinery throughput with Asia and Pacific recording healthy gains, North America registered small gains while other regions registered declines.

Oil demand correlates highly with refinery throughput. Considering the period 2000 to 2016, the explained variance of the assumed linear relationship between the two variables ( $R^2$ )<sup>1</sup> exceeds 99 per cent for total world, as well as for Asia and Pacific, while it reaches 80 per cent for the remaining of the regions. For total world and Asia and Pacific, this relationship is almost linear, with similar simple regression coefficients in both models, while this structure weakens for other world regions. These results are shown in the accompanying graph, which highlights the importance of Asia and Pacific in the oil market, particularly in the downstream.

Oil demand and refinery throughput  
(m b/d)



1. The square of the correlation coefficient.

Table 4.1

## Refinery capacity in OPEC Members by company and location

(1,000 b/cd)

	Location	2012	2013	2014	2015	2016
<b>Algeria</b>		<b>592.0</b>	<b>650.8</b>	<b>650.8</b>	<b>650.8</b>	<b>650.8</b>
Sonatrach	Skikda	323.4	355.3	355.3	355.3	355.3
	Skikda (condensate)	122.2	122.2	122.2	122.2	122.2
	Arzew	53.8	80.8	80.8	80.8	80.8
	Alger	58.1	58.1	58.1	58.1	58.1
	Hassi Messaoud	21.5	21.5	21.5	21.5	21.5
	Adrar	12.9	12.9	12.9	12.9	12.9
<b>Angola</b>		<b>65.0</b>	<b>65.0</b>	<b>65.0</b>	<b>65.0</b>	<b>65.0</b>
Fina Petroleos de Angola	Luanda	65.0	65.0	65.0	65.0	65.0
<b>Ecuador</b>		<b>188.4</b>	<b>190.8</b>	<b>190.8</b>	<b>190.8</b>	<b>190.8</b>
Petroindustrial	Esmeraldas	110.0	110.0	110.0	110.0	110.0
	Santa Elens	45.0	45.0	45.0	45.0	45.0
	Shushufindi	20.0	20.0	20.0	20.0	20.0
Repsol YPF	Orellana	7.2	7.2	7.2	7.2	7.2
Andes Petroleum	Sucumbios	3.5	3.5	3.5	3.5	3.5
Petroproduccion	El Oro	nap	2.4	2.4	2.4	2.4
	Sucumbios	1.7	1.7	1.7	1.7	1.7
	Lago Agrio	1.0	1.0	1.0	1.0	1.0
<b>Gabon</b>		<b>24.0</b>	<b>24.0</b>	<b>24.0</b>	<b>24.0</b>	<b>24.0</b>
Total & Shell	Port Gentil	24.0	24.0	24.0	24.0	24.0
<b>IR Iran</b>		<b>1,715.0</b>	<b>1,715.0</b>	<b>1,781.0</b>	<b>1,781.0</b>	<b>1,901.0</b>
NIOC	Abadan	360.0	360.0	399.0	399.0	399.0
	Isfahan	370.0	370.0	375.0	375.0	375.0
	Bandar Abbas	320.0	320.0	284.0	284.0	284.0
	Tehran	220.0	220.0	245.0	245.0	245.0
	Arak	250.0	250.0	242.0	242.0	242.0
	Tabriz	110.0	110.0	110.0	110.0	110.0
	Shiraz	40.0	40.0	56.0	56.0	56.0
	Lavan	25.0	25.0	22.0	22.0	22.0
	Kermanshah	20.0	20.0	48.0	48.0	48.0
	Bandar Abbas	nap	nap	nap	nap	120.0
<b>Iraq</b>		<b>820.0</b>	<b>830.0</b>	<b>900.0</b>	<b>900.0</b>	<b>900.0</b>
INOC	Baiji	310.0	310.0	310.0	310.0	310.0
	Basrah	140.0	140.0	210.0	210.0	210.0
	Daura	140.0	140.0	140.0	140.0	140.0
	Kirkuk	30.0	30.0	30.0	30.0	30.0
	Sainia	20.0	30.0	30.0	30.0	30.0
	Najaf	30.0	30.0	30.0	30.0	30.0
	Samawa	30.0	30.0	30.0	30.0	30.0
	Nasiria	30.0	30.0	30.0	30.0	30.0
	Missan	30.0	30.0	30.0	30.0	30.0
	Diwania	20.0	20.0	20.0	20.0	20.0
	Haditha	16.0	16.0	16.0	16.0	16.0
	Qaiarah	14.0	14.0	14.0	14.0	14.0
	Kask	10.0	10.0	10.0	10.0	10.0

Table 4.1

## Refinery capacity in OPEC Members by company and location

(1,000 b/cd)

	Location	2012	2013	2014	2015	2016
<b>Kuwait</b>		<b>936.0</b>	<b>936.0</b>	<b>936.0</b>	<b>936.0</b>	<b>936.0</b>
KNPC	Mina Al-Ahmadi	466.0	466.0	466.0	466.0	466.0
	Mina Abdullah	270.0	270.0	270.0	270.0	270.0
	Shuaiba	200.0	200.0	200.0	200.0	200.0
<b>Libya</b>		<b>380.0</b>	<b>380.0</b>	<b>380.0</b>	<b>380.0</b>	<b>380.0</b>
NOC	Ras Lanuf	220.0	220.0	220.0	220.0	220.0
	Zawia	120.0	120.0	120.0	120.0	120.0
	Tobruk	20.0	20.0	20.0	20.0	20.0
	Sarir	10.0	10.0	10.0	10.0	10.0
	Marsa El-Brega	10.0	10.0	10.0	10.0	10.0
<b>Nigeria</b>		<b>446.0</b>	<b>446.0</b>	<b>446.0</b>	<b>446.0</b>	<b>446.0</b>
PHRC	New Port Harcourt	150.0	150.0	150.0	150.0	150.0
WRPC	Warri	125.0	125.0	125.0	125.0	125.0
KRPC	Kaduna	110.0	110.0	110.0	110.0	110.0
PHRC	Old Port Harcourt	60.0	60.0	60.0	60.0	60.0
NDPR	Rivers State	1.0	1.0	1.0	1.0	1.0
<b>Qatar</b>		<b>283.0</b>	<b>283.0</b>	<b>283.0</b>	<b>283.0</b>	<b>429.0</b>
Qatar Petroleum	Ras Laffan condensate	146.0	146.0	146.0	146.0	146.0
Qatar Petroleum	Mesaieed refinery & condensate	137.0	137.0	137.0	137.0	137.0
Takreer	Ras Laffan condensate II	nap	nap	nap	nap	146.0
<b>Saudi Arabia</b>		<b>2,107.0</b>	<b>2,507.0</b>	<b>2,899.0</b>	<b>2,899.0</b>	<b>2,899.0</b>
Saudi Aramco	Ras Tanura	550.0	550.0	550.0	550.0	550.0
	Yanbu	235.0	235.0	245.0	245.0	245.0
	Riyadh	124.0	124.0	126.0	126.0	126.0
	Jeddah	88.0	88.0	78.0	78.0	78.0
Saudi Aramco & Mobil	Samref	400.0	400.0	400.0	400.0	400.0
Saudi Aramco & Petrola	Rabigh	400.0	400.0	400.0	400.0	400.0
Saudi Aramco & Total	Satorp	nap	400.0	400.0	400.0	400.0
Saudi Aramco	Yasref	nap	nap	400.0	400.0	400.0
Saudi Aramco & Shell	Sasref	310.0	310.0	300.0	300.0	300.0
<b>United Arab Emirates</b>		<b>675.0</b>	<b>707.0</b>	<b>707.0</b>	<b>1,124.0</b>	<b>1,124.0</b>
ADNOC	Al-Ruwais	400.0	400.0	400.0	817.0	817.0
Emirate Oil	Jebel Ali	120.0	140.0	140.0	140.0	140.0
ADNOC	Umm Al-Narr	85.0	85.0	85.0	85.0	85.0
METRO Oil	Fujairah	70.0	82.0	82.0	82.0	82.0
<b>Venezuela</b>		<b>1,872.0</b>	<b>1,855.0</b>	<b>1,890.6</b>	<b>1,890.6</b>	<b>1,890.6</b>
PDVSA	Amuay	600.0	600.0	600.0	600.0	600.0
	Cardon	340.0	340.0	340.0	340.0	340.0
	Puerto La Cruz	195.5	195.5	195.5	195.5	195.5
	El Palito	126.9	126.9	126.9	126.9	126.9
	San Roque	5.2	5.2	5.2	5.2	5.2
	Bajo Grande	4.1	5.0	5.0	5.0	5.0
	Petropiar <sup>1</sup>	184.2	145.8	198.0	198.0	198.0
	Petromonagas <sup>1</sup>	130.4	132.2	136.0	136.0	136.0
	Petrocedeno <sup>1</sup>	175.3	181.7	153.0	153.0	153.0
	Petrozuata <sup>1</sup>	110.4	122.7	131.0	131.0	131.0
<b>OPEC</b>		<b>10,103.3</b>	<b>10,589.6</b>	<b>11,153.2</b>	<b>11,570.2</b>	<b>11,836.2</b>

## Notes:

1. Upgrader refinery capacity.



Table 4.2  
Charge refinery capacity in OPEC Members, 2016

(1,000 b/cd)

	Vacuum distillation	Thermal operations	Catalytic cracking	Catalytic reforming	Catalytic <sup>1</sup> hydrocracking	Catalytic hydrotreating
Algeria	10.7	–	7.1	89.7	–	82.0
Angola	2.5	–	8.7	–	2.4	3.4
Ecuador	45.3	31.5	18.0	12.8	–	27.5
Gabon	–	9.2	–	1.4	–	9.4
IR Iran	624.0	104.0	40.0	197.4	145.0	180.2
Iraq	145.0	–	–	88.0	74.2	292.0
Kuwait	341.8	80.0	43.0	54.6	204.5	588.7
Libya	3.7	–	–	20.3	–	43.3
Nigeria <sup>1</sup>	132.2	23.4	86.0	73.5	33.0	110.8
Qatar <sup>1</sup>	–	–	60.0	24.6	194.0	39.4
Saudi Arabia	645.9	191.1	187.6	240.4	259.0	755.0
United Arab Emirates	92.8	–	127.0	208.2	120.0	638.3
Venezuela	679.0	145.0	231.8	49.5	–	389.7
<b>OPEC</b>	<b>2,722.9</b>	<b>584.2</b>	<b>809.2</b>	<b>1,060.4</b>	<b>1,032.1</b>	<b>3,159.6</b>

## Notes:

1. Includes GTL cracker capacities.

Table 4.3  
World refinery capacity by country

(1,000 b/cd)

	2012	2013	2014	2015	2016	change 16/15
<b>North America</b>	<b>19,377.8</b>	<b>19,782.4</b>	<b>19,837.3</b>	<b>20,023.7</b>	<b>20,366.7</b>	<b>343.0</b>
Canada	2,049.8	1,964.4	1,964.3	1,965.7	1,965.7	–
United States	17,328.0	17,818.0	17,873.0	18,058.0	18,401.0	343.0
<b>Latin America</b>	<b>8,785.2</b>	<b>8,363.7</b>	<b>8,541.3</b>	<b>8,669.1</b>	<b>8,669.1</b>	<b>–</b>
Argentina	630.6	630.6	630.6	630.6	630.6	–
Brazil	2,000.0	2,093.0	2,235.0	2,277.8	2,277.8	–
Colombia	330.0	330.0	330.0	415.0	415.0	–
Ecuador	188.4	190.8	190.8	190.8	190.8	–
Mexico	1,690.0	1,690.0	1,690.0	1,690.0	1,690.0	–
Curaçao	320.0	320.0	320.0	320.0	320.0	–
Trinidad & Tobago	168.0	168.0	168.0	168.0	168.0	–
Venezuela <sup>1</sup>	1,872.0	1,855.0	1,890.6	1,890.6	1,890.6	–
Others	1,586.3	1,086.3	1,086.3	1,086.3	1,086.3	–
<b>Eastern Europe and Eurasia</b>	<b>10,163.2</b>	<b>10,262.7</b>	<b>10,337.7</b>	<b>10,387.7</b>	<b>10,443.7</b>	<b>56.0</b>
Azerbaijan	399.0	399.0	399.0	399.0	399.0	–
Belarus	493.3	493.3	493.3	493.3	517.3	24.0
Kazakhstan	345.1	345.1	345.1	345.1	345.1	–
Poland	493.0	493.0	493.0	493.0	493.0	–
Romania	537.3	461.8	461.8	461.8	461.8	–

Table 4.3  
World refinery capacity by country

(1,000 b/cd)

	2012	2013	2014	2015	2016	change 16/15
<b>Eastern Europe and Eurasia (cont'd)</b>						
Russia	5,754.0	5,929.0	6,004.0	6,054.0	6,086.0	32.0
Ukraine	879.8	879.8	879.8	879.8	879.8	—
Others	1,261.8	1,261.8	1,261.8	1,261.8	1,261.8	—
<b>Western Europe</b>	<b>14,790.8</b>	<b>14,136.1</b>	<b>13,918.6</b>	<b>13,918.6</b>	<b>13,660.6</b>	<b>-258.0</b>
Belgium	739.8	739.8	739.8	739.8	739.8	—
France	1,718.8	1,508.4	1,406.0	1,406.0	1,248.0	-158.0
Germany	2,247.0	2,247.0	2,188.0	2,188.0	2,188.0	—
Italy	2,337.2	2,115.7	2,046.0	2,046.0	2,046.0	—
Netherlands	1,196.6	1,196.6	1,196.6	1,196.6	1,196.6	—
Spain	1,271.5	1,291.5	1,427.5	1,427.5	1,427.5	—
United Kingdom	1,767.2	1,524.4	1,402.0	1,402.0	1,302.0	-100.0
Others	3,512.7	3,512.7	3,512.7	3,512.7	3,512.7	—
<b>Middle East</b>	<b>7,718.3</b>	<b>8,160.3</b>	<b>8,688.3</b>	<b>9,105.3</b>	<b>9,371.3</b>	<b>266.0</b>
IR Iran	1,715.0	1,715.0	1,781.0	1,781.0	1,901.0	120.0
Iraq	820.0	830.0	900.0	900.0	900.0	—
Kuwait	936.0	936.0	936.0	936.0	936.0	—
Qatar	283.0	283.0	283.0	283.0	429.0	146.0
Saudi Arabia	2,107.0	2,507.0	2,899.0	2,899.0	2,899.0	—
United Arab Emirates	675.0	707.0	707.0	1,124.0	1,124.0	—
Others	1,182.3	1,182.3	1,182.3	1,182.3	1,182.3	—
<b>Africa</b>	<b>3,413.0</b>	<b>3,491.8</b>	<b>3,491.8</b>	<b>3,491.8</b>	<b>3,491.8</b>	<b>—</b>
Algeria	592.0	650.8	650.8	650.8	650.8	—
Angola	65.0	65.0	65.0	65.0	65.0	—
Egypt	726.3	726.3	726.3	726.3	726.3	—
South Africa	484.5	484.5	484.5	484.5	484.5	—
Gabon	24.0	24.0	24.0	24.0	24.0	—
Libya	380.0	380.0	380.0	380.0	380.0	—
Nigeria	446.0	446.0	446.0	446.0	446.0	—
Others	695.2	715.2	715.2	715.2	715.2	—
<b>Asia and Pacific</b>	<b>30,631.6</b>	<b>30,687.0</b>	<b>31,005.5</b>	<b>31,324.5</b>	<b>31,367.5</b>	<b>43.0</b>
Australia	760.1	674.1	541.1	440.1	440.1	—
China	11,547.3	11,787.3	12,337.3	12,437.3	12,497.3	60.0
India	4,278.8	4,319.0	4,319.0	4,619.0	4,619.0	—
Indonesia	1,157.0	1,157.0	1,157.0	1,157.0	1,157.0	—
Japan	4,477.4	4,339.7	3,946.7	3,916.7	3,789.7	-127.0
South Korea	2,949.0	2,949.0	3,009.0	3,059.0	3,169.0	110.0
Singapore	1,422.0	1,414.0	1,514.0	1,514.0	1,514.0	—
Others	4,039.9	4,046.9	4,181.4	4,181.4	4,181.4	—
<b>Total world</b>	<b>94,879.7</b>	<b>94,883.9</b>	<b>95,820.5</b>	<b>96,920.6</b>	<b>97,370.6</b>	<b>450.0</b>
<i>of which</i>						
OPEC	10,103.3	10,589.6	11,153.2	11,570.2	11,836.2	266.0
<i>OPEC percentage</i>	<i>10.6</i>	<i>11.2</i>	<i>11.6</i>	<i>11.9</i>	<i>12.2</i>	
OECD	45,035.7	44,561.9	43,933.4	44,038.7	44,106.7	68.0
FSU	8,532.4	8,707.4	8,782.4	8,832.4	8,888.4	56.0

**Notes:**

1. Includes upgrader capacity.

Table 4.4

## World refinery throughput by country

(1,000 b/d)

	2012	2013	2014	2015	2016	% change 16/15
<b>North America</b>	<b>16,847.4</b>	<b>17,136.2</b>	<b>17,664.5</b>	<b>17,948.8</b>	<b>18,099.7</b>	<b>0.8</b>
Canada	1,868.0	1,843.0	1,841.0	1,839.0	1,857.0	1.0
United States	14,979.4	15,293.2	15,823.5	16,109.8	16,242.7	0.8
<b>Latin America</b>	<b>6,969.8</b>	<b>6,756.2</b>	<b>6,409.4</b>	<b>6,238.9</b>	<b>5,782.3</b>	<b>-7.3</b>
Argentina	529.3	522.9	523.7	535.6	507.1	-5.3
Brazil	1,932.0	2,055.3	2,106.9	1,984.0	1,835.8	-7.5
Colombia	294.0	280.3	237.3	232.2	236.6	1.9
Ecuador	152.0	140.4	137.8	133.2	150.3	12.8
Mexico	1,206.5	1,224.6	1,152.8	1,059.7	931.7	-12.1
Curaçao	175.2	143.4	147.7	152.2	156.7	3.0
Trinidad & Tobago	108.4	125.5	104.3	125.3	147.4	17.6
Venezuela	1,315.8	1,393.6	1,351.0	1,416.9	1,210.4	-14.6
Others	1,256.7	870.0	647.8	599.8	606.4	1.1
<b>Eastern Europe and Eurasia</b>	<b>7,952.6</b>	<b>8,116.7</b>	<b>8,534.9</b>	<b>8,428.4</b>	<b>8,235.3</b>	<b>-2.3</b>
Azerbaijan	120.8	129.2	131.8	125.9	105.9	-15.9
Belarus	435.1	424.9	449.9	464.4	374.8	-19.3
Kazakhstan	295.8	297.6	385.8	359.3	357.2	-0.6
Poland	503.8	487.9	485.8	524.8	516.1	-1.7
Romania	188.2	193.9	215.8	212.7	233.8	10.0
Russia	5,434.9	5,590.9	5,915.3	5,791.6	5,717.0	-1.3
Ukraine	78.4	89.5	73.8	29.3	25.1	-14.5
Others	895.7	903.0	876.7	920.5	905.3	-1.7
<b>Western Europe</b>	<b>11,395.6</b>	<b>10,786.2</b>	<b>10,715.3</b>	<b>11,359.9</b>	<b>11,218.3</b>	<b>-1.2</b>
Belgium	638.0	555.5	645.3	643.8	641.3	-0.4
France	1,157.1	1,138.4	1,115.3	1,172.6	1,141.4	-2.7
Germany	1,940.2	1,895.3	1,861.8	1,914.6	1,902.1	-0.7
Italy	1,487.4	1,270.9	1,202.3	1,346.0	1,304.8	-3.1
Netherlands	1,008.2	959.7	1,003.7	1,062.1	1,092.1	2.8
Spain	1,177.3	1,161.3	1,178.5	1,295.8	1,296.1	-
United Kingdom	1,376.9	1,219.6	1,142.6	1,143.4	1,092.8	-4.4
Others	2,610.4	2,585.4	2,566.0	2,781.6	2,747.7	-1.2
<b>Middle East</b>	<b>6,815.2</b>	<b>6,604.6</b>	<b>6,899.2</b>	<b>7,266.0</b>	<b>7,923.9</b>	<b>9.1</b>
IR Iran	1,717.0	1,817.0	1,817.0	1,817.0	1,857.3	2.2
Iraq	587.0	606.5	495.3	415.1	625.8	50.7
Kuwait	905.5	863.7	871.8	865.6	801.0	-7.5
Qatar	292.0	269.0	261.0	252.8	280.0	10.7
Saudi Arabia	1,726.1	1,577.5	2,000.0	2,180.5	2,459.1	12.8
United Arab Emirates	637.5	650.5	636.8	918.6	1,100.3	19.8
Others	950.2	820.5	817.3	816.3	800.5	-1.9
<b>Africa</b>	<b>2,262.4</b>	<b>2,117.7</b>	<b>2,300.6</b>	<b>2,160.3</b>	<b>2,139.0</b>	<b>-1.0</b>
Algeria	577.6	536.8	699.3	670.9	658.5	-1.9
Angola	38.8	33.4	31.6	52.7	53.7	1.9
Egypt	532.9	487.4	527.0	527.1	501.8	-4.8
South Africa	464.9	400.7	450.7	444.1	456.2	2.7
Gabon	15.8	17.1	16.7	16.5	16.8	1.5
Libya	123.3	140.1	91.9	91.9	90.1	-2.0
Nigeria	84.7	94.7	67.1	21.8	61.9	184.4
Others	424.4	407.6	416.4	335.4	300.2	-10.5
<b>Asia and Pacific</b>	<b>25,180.3</b>	<b>25,886.8</b>	<b>26,098.6</b>	<b>27,293.4</b>	<b>28,543.4</b>	<b>4.6</b>
Australia	599.6	587.6	538.0	427.4	433.4	1.4
China	9,512.0	9,782.0	10,158.0	11,001.0	11,545.0	4.9
India	4,300.3	4,462.6	4,475.9	4,561.0	4,930.2	8.1
Indonesia	819.9	822.3	847.8	836.4	861.5	3.0
Japan	3,223.5	3,265.8	3,125.5	3,137.5	3,152.9	0.5
South Korea	2,589.5	2,484.0	2,516.0	2,784.0	2,948.6	5.9
Singapore	993.7	1,277.0	1,262.0	1,210.0	1,238.0	2.3
Others	3,141.8	3,205.6	3,175.4	3,336.1	3,433.8	2.9
<b>Total world</b>	<b>77,423.3</b>	<b>77,404.5</b>	<b>78,622.6</b>	<b>80,695.8</b>	<b>81,941.7</b>	<b>1.5</b>
<i>of which</i>						
OPEC	8,173.0	8,140.2	8,477.3	8,853.7	9,364.8	5.8
<i>OPEC percentage</i>	<i>10.6</i>	<i>10.5</i>	<i>10.8</i>	<i>11.0</i>	<i>11.4</i>	
OECD	37,075.0	36,684.8	36,946.3	37,996.5	38,008.7	-
FSU	6,761.2	6,948.4	7,338.7	7,172.5	6,999.8	-2.4

Table 4.5  
Output of petroleum products in OPEC Members

(1,000 b/d)

	2012	2013	2014	2015	2016	% change 16/15
<b>Algeria</b>	<b>451.5</b>	<b>506.0</b>	<b>655.1</b>	<b>628.6</b>	<b>622.1</b>	<b>-1.0</b>
Gasoline	50.8	48.7	63.3	59.0	55.0	-6.9
Kerosene	24.3	36.1	42.2	34.4	34.8	1.2
Distillates	126.4	148.6	190.4	186.2	187.0	0.4
Residuals	86.7	113.0	139.4	139.6	144.7	3.6
Others	163.3	159.5	219.8	209.4	200.6	-4.2
<b>Angola</b>	<b>38.7</b>	<b>45.4</b>	<b>43.8</b>	<b>43.5</b>	<b>53.0</b>	<b>21.7</b>
Gasoline	1.5	1.5	0.5	0.4	0.8	110.8
Kerosene	7.8	9.2	11.1	6.8	9.3	36.2
Distillates	10.8	12.1	10.1	12.4	12.4	-
Residuals	16.3	16.9	13.0	17.1	18.1	6.1
Others	2.4	5.8	9.2	6.8	12.4	81.1
<b>Ecuador</b>	<b>132.9</b>	<b>210.0</b>	<b>201.0</b>	<b>193.6</b>	<b>205.7</b>	<b>6.3</b>
Gasoline	28.3	65.1	81.1	85.6	83.0	-3.1
Kerosene	8.2	8.6	8.2	8.0	7.7	-4.1
Distillates	42.1	32.3	29.7	29.2	35.9	23.0
Residuals	32.6	54.6	45.3	45.1	56.6	25.5
Others	21.6	49.4	36.7	25.6	22.5	-12.2
<b>Gabon</b>	<b>15.3</b>	<b>16.7</b>	<b>16.2</b>	<b>16.1</b>	<b>16.2</b>	<b>0.6</b>
Gasoline	1.6	1.3	1.5	1.4	1.5	3.5
Kerosene	0.5	0.6	0.6	0.5	0.6	3.8
Distillates	4.4	4.8	4.6	4.6	4.6	-
Residuals	7.4	8.3	7.9	7.9	7.9	-
Others	1.4	1.7	1.6	1.6	1.6	1.2
<b>IR Iran</b>	<b>1,811.9</b>	<b>1,918.4</b>	<b>1,811.5</b>	<b>1,818.5</b>	<b>1,857.3</b>	<b>2.1</b>
Gasoline	418.6	455.7	412.5	422.4	435.1	3.0
Kerosene	124.5	124.5	137.7	128.8	131.4	2.0
Distillates	555.6	588.6	533.0	545.4	561.8	3.0
Residuals	476.3	512.8	464.3	457.8	462.4	1.0
Others	237.0	237.0	264.0	264.0	266.7	1.0
<b>Iraq</b>	<b>580.4</b>	<b>601.3</b>	<b>522.8</b>	<b>444.7</b>	<b>448.9</b>	<b>1.0</b>
Gasoline	76.4	85.9	66.2	56.0	49.2	-12.2
Kerosene	44.5	41.6	30.9	27.8	33.9	21.9
Distillates	127.6	132.4	104.3	72.3	67.0	-7.4
Residuals	282.4	293.0	249.2	221.8	220.6	-0.6
Others	49.5	48.4	72.2	66.7	78.3	17.4
<b>Kuwait</b>	<b>1,057.0</b>	<b>992.1</b>	<b>918.3</b>	<b>1,013.2</b>	<b>923.5</b>	<b>-8.9</b>
Gasoline	52.4	59.2	36.8	47.8	60.9	27.6
Kerosene	180.8	187.8	195.8	189.7	168.6	-11.1
Distillates	227.6	248.3	244.5	226.1	212.0	-6.3
Residuals	199.8	179.8	149.9	185.3	201.5	8.7
Others	396.4	317.0	291.3	364.3	280.5	-23.0
<b>Libya</b>	<b>148.3</b>	<b>144.8</b>	<b>135.0</b>	<b>137.2</b>	<b>133.9</b>	<b>-2.4</b>
Gasoline	15.1	17.3	16.7	16.3	16.2	-1.0
Kerosene	16.2	16.4	16.8	16.4	16.1	-2.0
Distillates	46.2	41.8	37.9	37.9	36.4	-4.0
Residuals	41.4	43.9	42.3	43.1	41.8	-3.0
Others	29.4	25.4	21.4	23.4	23.4	-

Table 4.5

## Output of petroleum products in OPEC Members

(1,000 b/d)

	2012	2013	2014	2015	2016	% change 16/15
<b>Nigeria</b>	<b>82.3</b>	<b>88.5</b>	<b>57.0</b>	<b>24.1</b>	<b>53.5</b>	<b>122.2</b>
Gasoline	27.4	30.4	17.3	12.3	15.2	23.7
Kerosene	12.9	15.8	9.8	3.4	8.3	140.1
Distillates	18.8	18.4	13.2	4.5	13.8	206.9
Residuals	18.4	20.7	14.5	3.6	7.0	93.5
Others	4.8	3.3	2.1	0.3	9.3	3,609.5
<b>Qatar</b>	<b>659.0</b>	<b>650.0</b>	<b>638.4</b>	<b>611.3</b>	<b>632.3</b>	<b>3.4</b>
Gasoline	46.0	37.0	46.2	36.9	45.8	23.9
Kerosene	79.0	76.0	67.3	71.3	80.3	12.7
Distillates	45.0	44.0	44.9	42.7	42.4	-0.6
Residuals	6.0	7.0	4.5	9.5	4.1	-57.0
Others	483.0	486.0	475.6	450.9	459.7	1.9
<b>Saudi Arabia</b>	<b>1,927.1</b>	<b>1,841.7</b>	<b>2,103.5</b>	<b>2,480.5</b>	<b>2,825.9</b>	<b>13.9</b>
Gasoline	398.6	369.0	425.4	492.9	552.9	12.2
Kerosene	174.3	162.9	199.2	210.8	244.5	16.0
Distillates	639.7	602.1	710.7	962.9	1,050.9	9.1
Residuals	508.4	455.3	469.1	447.0	459.9	2.9
Others	206.1	252.4	299.2	366.9	517.7	41.1
<b>United Arab Emirates</b>	<b>624.0</b>	<b>653.3</b>	<b>625.6</b>	<b>834.9</b>	<b>1,089.0</b>	<b>30.4</b>
Gasoline	87.6	91.4	87.2	102.5	132.0	28.7
Kerosene	180.5	191.5	180.5	256.9	341.0	32.7
Distillates	112.0	123.2	123.2	176.9	220.0	24.4
Residuals	35.3	51.0	26.0	26.1	33.0	26.3
Others	208.6	196.3	208.6	272.5	363.0	33.2
<b>Venezuela</b>	<b>1,232.0</b>	<b>1,245.1</b>	<b>1,162.5</b>	<b>1,049.9</b>	<b>960.9</b>	<b>-8.5</b>
Gasoline	294.6	293.1	273.7	248.0	202.6	-18.3
Kerosene	71.2	67.7	63.4	60.5	38.1	-37.1
Distillates	269.2	255.2	242.7	206.7	166.6	-19.4
Residuals	303.7	312.4	271.8	255.9	266.4	4.1
Others	293.2	316.7	311.0	278.8	287.2	3.0
<b>OPEC</b>	<b>8,760.4</b>	<b>8,913.4</b>	<b>8,890.6</b>	<b>9,296.1</b>	<b>9,822.1</b>	<b>5.7</b>
Gasoline	1,499.0	1,555.5	1,528.2	1,581.6	1,650.0	4.3
Kerosene	924.8	938.7	963.4	1,015.5	1,114.6	9.8
Distillates	2,225.3	2,251.7	2,289.2	2,507.9	2,610.8	4.1
Residuals	2,014.7	2,068.6	1,897.2	1,859.9	1,923.9	3.4
Others	2,096.7	2,098.9	2,212.5	2,331.2	2,522.7	8.2

## Notes:

Data may include products from GTLs and condensate units.



Table 4.6  
World output of petroleum products by country

(1,000 b/d)

	2012	2013	2014	2015	2016	% change 16/15
<b>North America</b>	<b>20,663.0</b>	<b>21,176.6</b>	<b>21,706.3</b>	<b>21,906.5</b>	<b>22,094.5</b>	<b>0.9</b>
Canada	2,099.0	2,070.6	2,052.3	2,020.5	2,033.0	0.6
United States	18,564.0	19,106.0	19,654.0	19,886.0	20,061.5	0.9
<b>Latin America</b>	<b>7,313.9</b>	<b>7,333.2</b>	<b>7,047.2</b>	<b>6,728.5</b>	<b>6,408.7</b>	<b>-4.8</b>
Argentina	650.9	681.7	681.7	716.4	691.1	-3.5
Brazil	2,021.8	2,135.2	2,179.3	2,041.2	1,910.3	-6.4
Colombia	319.4	313.7	341.9	348.7	355.7	2.0
Ecuador	132.9	210.0	201.0	193.6	205.7	6.3
Mexico	1,417.6	1,517.2	1,463.6	1,334.2	1,197.4	-10.2
Curaçao	146.5	146.5	161.2	166.0	171.0	3.0
Trinidad & Tobago	85.0	125.3	99.1	124.8	148.6	19.1
Venezuela	1,232.0	1,245.1	1,162.5	1,049.9	960.9	-8.5
Others	1,307.8	958.6	757.0	753.8	768.0	1.9
<b>Eastern Europe and Eurasia</b>	<b>9,068.9</b>	<b>9,157.9</b>	<b>9,307.3</b>	<b>9,132.2</b>	<b>8,911.4</b>	<b>-2.4</b>
Azerbaijan	114.7	126.1	128.5	125.3	114.7	-8.4
Belarus	408.4	404.3	414.5	414.5	339.4	-18.1
Kazakhstan	300.0	352.1	385.8	359.3	358.9	-0.1
Poland	569.5	518.3	515.5	566.2	556.1	-1.8
Romania	216.4	215.2	244.4	242.3	265.9	9.7
Russia	6,436.1	6,536.1	6,636.1	6,437.0	6,337.0	-1.6
Ukraine	112.7	87.7	71.5	29.3	25.1	-14.5
Others	911.1	918.0	911.0	958.4	914.4	-4.6
<b>Western Europe</b>	<b>12,379.2</b>	<b>12,320.6</b>	<b>12,234.1</b>	<b>12,851.8</b>	<b>12,822.9</b>	<b>-0.2</b>
Belgium	714.5	666.2	734.5	728.9	696.3	-4.5
France	1,296.3	1,260.6	1,264.3	1,270.5	1,263.7	-0.5
Germany	2,120.1	2,139.1	2,114.8	2,163.3	2,231.4	3.1
Italy	1,607.2	1,495.0	1,408.3	1,566.9	1,556.8	-0.6
Netherlands	1,208.8	1,186.4	1,214.1	1,277.5	1,281.3	0.3
Spain	1,236.6	1,238.5	1,243.5	1,335.6	1,327.6	-0.6
United Kingdom	1,417.9	1,410.5	1,332.7	1,341.0	1,314.7	-2.0
Others	2,777.8	2,924.4	2,921.9	3,168.1	3,151.2	-0.5
<b>Middle East</b>	<b>7,612.7</b>	<b>7,575.8</b>	<b>7,485.4</b>	<b>8,099.6</b>	<b>8,663.8</b>	<b>7.0</b>
IR Iran	1,811.9	1,918.4	1,811.5	1,818.5	1,857.3	2.1
Iraq	580.4	601.3	522.8	444.7	448.9	1.0
Kuwait	1,057.0	992.1	918.3	1,013.2	923.5	-8.9
Qatar	659.0	650.0	638.4	611.3	632.3	3.4
Saudi Arabia	1,927.1	1,841.7	2,103.5	2,480.5	2,825.9	13.9
United Arab Emirates	624.0	653.3	625.6	834.9	1,089.0	30.4
Others	953.3	918.9	865.4	896.5	886.9	-1.1
<b>Africa</b>	<b>2,185.9</b>	<b>2,162.7</b>	<b>2,324.2</b>	<b>2,163.4</b>	<b>2,138.2</b>	<b>-1.2</b>
Algeria	451.5	506.0	655.1	628.6	622.1	-1.0
Angola	38.7	45.4	43.8	43.5	53.0	21.7
Egypt	543.9	487.3	510.8	527.7	501.2	-5.0
South Africa	500.6	435.6	476.2	452.4	464.6	2.7
Gabon	15.3	16.7	16.2	16.1	16.2	0.6
Libya	148.3	144.8	135.0	137.2	133.9	-2.4
Nigeria	82.3	88.5	57.0	24.1	53.5	122.2
Others	405.2	438.4	430.0	333.8	293.7	-12.0
<b>Asia and Pacific</b>	<b>26,671.5</b>	<b>26,833.2</b>	<b>27,584.1</b>	<b>28,284.6</b>	<b>29,074.3</b>	<b>2.8</b>
Australia	644.6	628.3	603.8	479.3	469.0	-2.1
China	10,132.6	10,248.5	10,794.7	11,118.6	11,418.0	2.7
India	4,096.6	4,514.7	4,798.1	4,888.1	5,235.5	7.1
Indonesia	965.1	889.8	938.6	971.2	1,000.3	3.0
Japan	3,748.1	3,669.0	3,518.8	3,508.8	3,510.5	-
South Korea	2,834.8	2,745.2	2,822.2	3,060.2	3,110.0	1.6
Singapore	1,099.6	1,044.5	1,031.9	1,001.0	1,024.0	2.3
Others	3,150.0	3,093.2	3,076.0	3,257.5	3,307.0	1.5
<b>Total world</b>	<b>85,895.1</b>	<b>86,560.1</b>	<b>87,688.4</b>	<b>89,166.7</b>	<b>90,113.7</b>	<b>1.1</b>
<i>of which</i>						
OPEC	8,760.4	8,913.4	8,890.6	9,296.1	9,822.1	5.7
<i>OPEC percentage</i>	<i>10.2</i>	<i>10.3</i>	<i>10.1</i>	<i>10.4</i>	<i>10.9</i>	
OECD	43,171.4	43,515.6	43,811.6	44,682.9	44,657.0	-0.1
FSU	7,709.7	7,850.8	7,952.2	7,713.2	7,542.4	-2.2

**Notes:**

Data may include products from GTL and condensate units.

Table 4.7

## Oil demand by main petroleum product in OPEC Members

(1,000 b/d)

	2012	2013	2014	2015	2016	% change 16/15
<b>Algeria</b>	<b>351.1</b>	<b>376.8</b>	<b>389.5</b>	<b>418.5</b>	<b>399.0</b>	<b>-4.7</b>
Gasoline	79.3	80.7	87.0	93.3	89.8	-3.7
Kerosene	11.2	11.3	11.7	11.7	11.9	1.5
Distillates	187.5	207.1	211.7	224.7	218.5	-2.8
Residuals	4.0	4.5	4.4	4.6	4.0	-12.3
Others	69.1	73.2	74.7	84.2	74.8	-11.2
<b>Angola</b>	<b>84.5</b>	<b>149.2</b>	<b>147.2</b>	<b>141.8</b>	<b>122.0</b>	<b>-14.0</b>
Gasoline	21.8	28.6	33.6	30.8	25.8	-16.1
Kerosene	4.1	11.3	11.9	11.6	9.4	-18.7
Distillates	50.7	75.1	77.4	86.4	60.2	-30.3
Residuals	0.9	6.7	1.9	1.2	3.0	148.1
Others	7.0	27.6	22.4	11.8	23.6	99.2
<b>Ecuador</b>	<b>269.2</b>	<b>272.0</b>	<b>285.8</b>	<b>258.7</b>	<b>247.0</b>	<b>-4.5</b>
Gasoline	49.8	50.8	52.9	58.7	64.5	9.8
Kerosene	7.3	7.9	7.9	7.5	6.9	-7.7
Distillates	79.5	88.9	92.6	91.6	84.4	-7.8
Residuals	39.1	32.9	38.6	33.8	26.1	-22.8
Others	93.5	91.6	93.7	67.1	65.1	-3.0
<b>Gabon</b>	<b>21.6</b>	<b>23.5</b>	<b>23.6</b>	<b>24.4</b>	<b>25.2</b>	<b>3.3</b>
Gasoline	1.6	1.8	1.9	2.1	2.1	1.1
Kerosene	2.4	2.6	2.2	2.3	2.4	3.2
Distillates	13.5	15.2	15.5	16.3	16.8	3.2
Residuals	3.2	3.0	3.0	2.9	3.0	4.1
Others	0.9	0.9	1.0	0.9	1.0	9.3
<b>IR Iran</b>	<b>1,764.7</b>	<b>1,776.2</b>	<b>1,845.6</b>	<b>1,794.9</b>	<b>1,742.2</b>	<b>-2.9</b>
Gasoline	393.4	394.5	437.6	455.5	444.0	-2.5
Kerosene	104.2	104.5	137.7	128.8	127.8	-0.8
Distillates	618.1	619.8	538.4	546.5	498.9	-8.7
Residuals	342.7	343.7	413.5	378.6	365.9	-3.4
Others	306.2	313.7	318.5	285.5	305.7	7.1
<b>Iraq</b>	<b>664.5</b>	<b>714.8</b>	<b>680.3</b>	<b>685.9</b>	<b>757.1</b>	<b>10.4</b>
Gasoline	136.9	134.3	110.3	104.6	108.7	3.9
Kerosene	47.8	44.9	32.8	30.9	32.8	6.2
Distillates	156.4	159.3	131.1	104.2	100.0	-4.1
Residuals	158.9	173.5	153.0	179.1	217.7	21.5
Others	164.6	202.7	253.0	267.1	297.9	11.5
<b>Kuwait</b>	<b>377.0</b>	<b>329.6</b>	<b>337.0</b>	<b>345.7</b>	<b>349.7</b>	<b>1.2</b>
Gasoline	62.6	65.7	69.0	71.1	70.3	-1.1
Kerosene	19.0	13.3	15.4	16.2	17.5	8.0
Distillates	54.1	56.7	54.6	48.4	49.1	1.5
Residuals	135.0	128.2	127.0	122.3	131.0	7.1
Others	106.2	65.7	71.0	87.7	81.8	-6.8

Table 4.7

## Oil demand by main petroleum product in OPEC Members

(1,000 b/d)

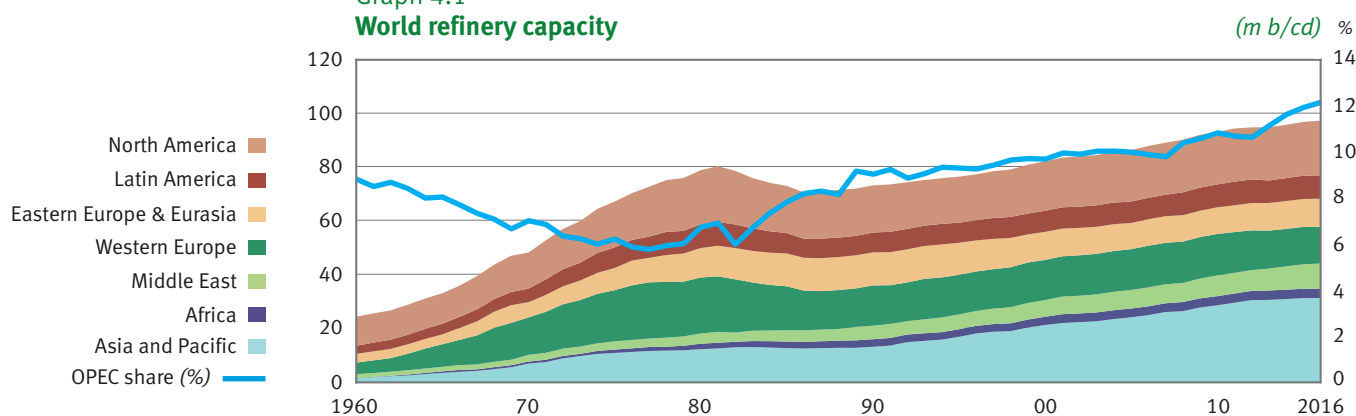
	2012	2013	2014	2015	2016	% change 16/15
<b>Libya</b>	<b>220.0</b>	<b>250.0</b>	<b>222.2</b>	<b>211.1</b>	<b>207.6</b>	<b>-1.7</b>
Gasoline	72.9	88.5	78.1	75.2	76.4	1.6
Kerosene	17.3	9.4	6.5	5.1	5.2	1.8
Distillates	70.2	98.0	90.4	85.3	84.1	-1.4
Residuals	45.8	38.7	33.2	32.0	29.2	-8.7
Others	13.8	15.3	14.0	13.5	12.7	-6.2
<b>Nigeria</b>	<b>343.6</b>	<b>384.9</b>	<b>396.1</b>	<b>407.8</b>	<b>393.1</b>	<b>-3.6</b>
Gasoline	241.3	273.9	283.8	306.4	298.7	-2.5
Kerosene	47.7	53.3	53.0	43.9	24.9	-43.2
Distillates	45.1	48.8	50.3	56.0	67.0	19.6
Residuals	8.6	8.0	7.9	1.0	1.8	77.2
Others	1.0	1.0	1.1	0.6	0.8	40.0
<b>Qatar</b>	<b>125.4</b>	<b>149.1</b>	<b>167.9</b>	<b>206.0</b>	<b>227.0</b>	<b>10.2</b>
Gasoline	31.5	29.6	34.2	33.1	29.4	-11.4
Kerosene	40.3	57.5	65.4	94.9	111.0	16.9
Distillates	32.6	39.6	45.3	53.3	51.0	-4.4
Residuals	2.0	2.1	2.1	2.2	2.3	3.7
Others	18.8	20.3	20.9	22.5	33.4	48.4
<b>Saudi Arabia</b>	<b>2,872.7</b>	<b>2,994.0</b>	<b>3,163.4</b>	<b>3,318.7</b>	<b>3,209.8</b>	<b>-3.3</b>
Gasoline	480.7	504.5	522.5	558.8	555.7	-0.6
Kerosene	67.7	70.0	74.7	85.9	87.6	1.9
Distillates	710.8	729.7	753.3	778.4	701.0	-9.9
Residuals	318.8	364.1	379.5	399.0	470.5	17.9
Others	1,294.8	1,325.8	1,433.4	1,496.5	1,395.1	-6.8
<b>United Arab Emirates</b>	<b>638.0</b>	<b>665.2</b>	<b>719.5</b>	<b>778.1</b>	<b>799.2</b>	<b>2.7</b>
Gasoline	127.9	144.0	167.6	174.8	176.0	0.7
Kerosene	95.7	102.8	119.3	146.5	148.0	1.1
Distillates	94.3	92.4	98.2	105.5	106.0	0.5
Residuals	284.8	290.5	295.4	311.8	329.2	5.6
Others	35.3	35.5	39.0	39.5	40.0	1.2
<b>Venezuela</b>	<b>786.3</b>	<b>831.1</b>	<b>751.8</b>	<b>657.9</b>	<b>566.2</b>	<b>-13.9</b>
Gasoline	301.8	299.1	283.3	259.1	227.3	-12.3
Kerosene	7.5	6.6	6.4	5.4	4.5	-16.2
Distillates	217.8	249.1	236.9	210.3	163.1	-22.4
Residuals	46.9	48.5	36.8	21.0	19.9	-5.3
Others	212.2	227.9	188.4	162.2	151.4	-6.7
<b>OPEC</b>	<b>8,518.6</b>	<b>8,916.6</b>	<b>9,129.8</b>	<b>9,249.7</b>	<b>9,045.2</b>	<b>-2.2</b>
Gasoline	2,001.7	2,096.0	2,161.7	2,223.5	2,168.6	-2.5
Kerosene	472.1	495.3	545.0	590.7	589.9	-0.1
Distillates	2,330.6	2,479.6	2,395.5	2,406.9	2,200.0	-8.6
Residuals	1,390.8	1,444.4	1,496.5	1,489.4	1,603.4	7.7
Others	2,323.5	2,401.3	2,531.0	2,539.2	2,483.2	-2.2

Table 4.8  
World oil demand by country

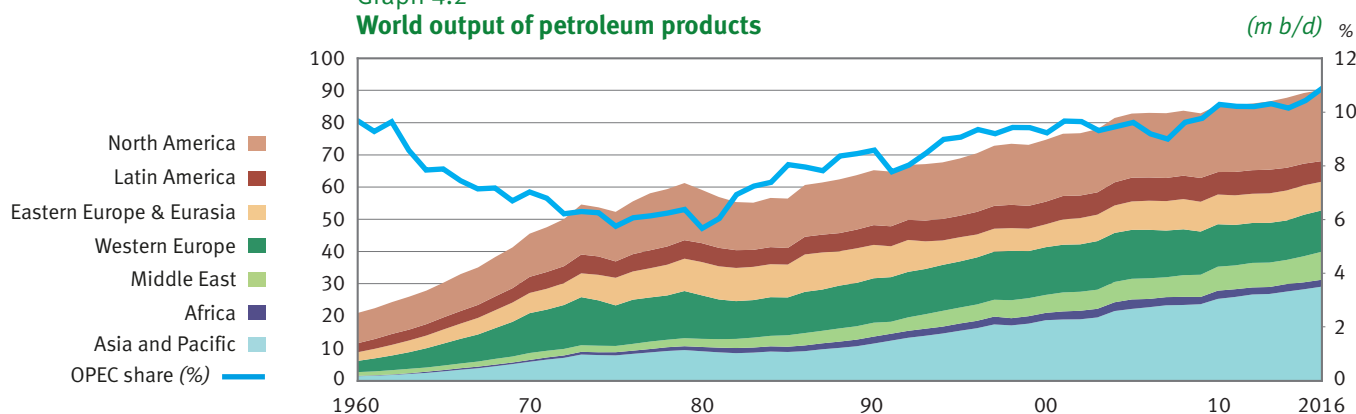
(1,000 b/d)

	2012	2013	2014	2015	2016	% change 16/15
<b>North America</b>	<b>20,963.1</b>	<b>21,446.8</b>	<b>21,562.5</b>	<b>21,985.0</b>	<b>22,160.6</b>	<b>0.8</b>
Canada	2,470.5	2,455.0	2,406.6	2,406.0	2,428.3	0.9
United States	18,490.2	18,989.3	19,153.4	19,576.4	19,729.7	0.8
Others	2.5	2.5	2.5	2.5	2.6	1.3
<b>Latin America</b>	<b>9,094.3</b>	<b>9,294.9</b>	<b>9,305.1</b>	<b>9,170.5</b>	<b>9,046.0</b>	<b>-1.4</b>
Argentina	679.2	688.8	719.8	715.9	719.6	0.5
Brazil	2,955.1	3,097.5	3,158.1	3,111.3	3,071.7	-1.3
Colombia	299.3	297.5	306.3	318.9	324.4	1.7
Ecuador	269.2	272.0	285.8	258.7	247.0	-4.5
Mexico	2,102.2	2,090.6	2,039.8	2,006.7	1,951.7	-2.7
Venezuela	786.3	831.1	751.8	657.9	566.2	-13.9
Others	2,003.1	2,017.2	2,043.7	2,101.1	2,165.4	3.1
<b>Eastern Europe and Eurasia</b>	<b>5,703.2</b>	<b>5,766.1</b>	<b>5,903.3</b>	<b>5,928.5</b>	<b>6,023.4</b>	<b>1.6</b>
Czech Republic	194.0	187.6	199.9	193.2	170.5	-11.7
Hungary	132.3	129.6	145.1	155.1	158.0	1.9
Kazakhstan	275.5	276.5	285.4	270.5	271.8	0.5
Poland	532.8	505.3	505.5	527.7	584.2	10.7
Romania	166.8	167.3	174.5	180.3	186.5	3.5
Russia	3,317.7	3,376.6	3,460.1	3,433.7	3,424.4	-0.3
Slovakia	71.3	75.0	73.8	82.5	86.0	4.2
Ukraine	295.8	273.5	259.3	257.9	268.7	4.2
Others	717.0	774.7	799.7	827.6	873.1	5.5
<b>Western Europe</b>	<b>13,153.6</b>	<b>13,021.8</b>	<b>12,901.6</b>	<b>13,111.7</b>	<b>13,385.9</b>	<b>2.1</b>
France	1,738.9	1,714.4	1,691.7	1,690.7	1,681.0	-0.6
Germany	2,389.2	2,435.3	2,373.9	2,372.3	2,413.1	1.7
Italy	1,370.3	1,259.9	1,266.2	1,265.9	1,267.1	0.1
Netherlands	997.4	991.1	991.3	945.4	993.3	5.1
Spain	1,300.9	1,208.4	1,199.6	1,255.4	1,288.6	2.6
United Kingdom	1,534.9	1,527.4	1,519.9	1,544.9	1,588.0	2.8
Others	3,822.1	3,885.3	3,859.0	4,037.2	4,154.8	2.9
<b>Middle East</b>	<b>7,672.2</b>	<b>7,709.9</b>	<b>7,974.6</b>	<b>8,199.6</b>	<b>8,195.8</b>	<b>-</b>
IR Iran	1,764.7	1,776.2	1,845.6	1,794.9	1,742.2	-2.9
Iraq	664.5	714.8	680.3	685.9	757.1	10.4
Kuwait	377.0	329.6	337.0	345.7	349.7	1.2
Qatar	125.4	149.1	167.9	206.0	227.0	10.2
Saudi Arabia	2,872.7	2,994.0	3,163.4	3,318.7	3,209.8	-3.3
Syrian Arab Republic	250.1	153.9	143.2	131.1	121.3	-7.5
United Arab Emirates	638.0	665.2	719.5	778.1	799.2	2.7
Others	979.8	927.1	917.7	939.1	989.4	5.4
<b>Africa</b>	<b>3,627.5</b>	<b>3,819.1</b>	<b>3,904.2</b>	<b>3,992.0</b>	<b>4,095.3</b>	<b>2.6</b>
Algeria	351.1	376.8	389.5	418.5	399.0	-4.7
Angola	84.5	149.2	147.2	141.8	122.0	-14.0
Egypt	830.5	799.0	826.1	823.2	871.9	5.9
Gabon	21.6	23.5	23.6	24.4	25.2	3.3
Libya	220.0	250.0	222.2	211.1	207.6	-1.7
Nigeria	343.6	384.9	396.1	407.8	393.1	-3.6
South Africa	609.4	641.2	638.1	642.2	657.9	2.4
Tunisia	89.5	89.7	94.5	88.2	89.8	1.8
Others	1,077.3	1,104.6	1,167.1	1,234.6	1,328.8	7.6
<b>Asia and Pacific</b>	<b>29,214.5</b>	<b>30,015.2</b>	<b>30,439.1</b>	<b>31,290.4</b>	<b>32,208.2</b>	<b>2.9</b>
Australia	1,094.9	1,120.8	1,118.6	1,123.5	1,122.3	-0.1
China	9,793.0	10,387.8	10,784.8	11,194.5	11,506.3	2.8
India	3,629.4	3,668.3	3,786.3	4,050.9	4,387.0	8.3
Indonesia	1,580.7	1,604.9	1,635.1	1,668.5	1,684.3	0.9
Japan	4,630.2	4,504.1	4,267.1	4,120.2	3,992.7	-3.1
New Zealand	151.7	154.5	156.2	161.0	167.0	3.8
South Korea	2,321.8	2,328.3	2,347.5	2,406.8	2,565.7	6.6
Thailand	1,248.9	1,315.2	1,330.9	1,324.9	1,377.8	4.0
Others	4,763.8	4,931.3	5,012.6	5,240.1	5,405.2	3.1
<b>Total world</b>	<b>89,428.3</b>	<b>91,073.8</b>	<b>91,990.5</b>	<b>93,677.7</b>	<b>95,115.1</b>	<b>1.5</b>
<i>of which</i>						
OPEC	8,518.6	8,916.6	9,129.8	9,249.7	9,045.2	-2.2
<i>OPEC percentage</i>	<i>9.5</i>	<i>9.8</i>	<i>9.9</i>	<i>9.9</i>	<i>9.5</i>	
OECD	45,951.5	46,105.1	45,818.2	46,380.3	46,860.4	1.0
FSU	4,444.9	4,540.0	4,641.0	4,621.2	4,661.9	0.9

Graph 4.1  
World refinery capacity



Graph 4.2  
World output of petroleum products



Graph 4.3  
OPEC output of refined petroleum products

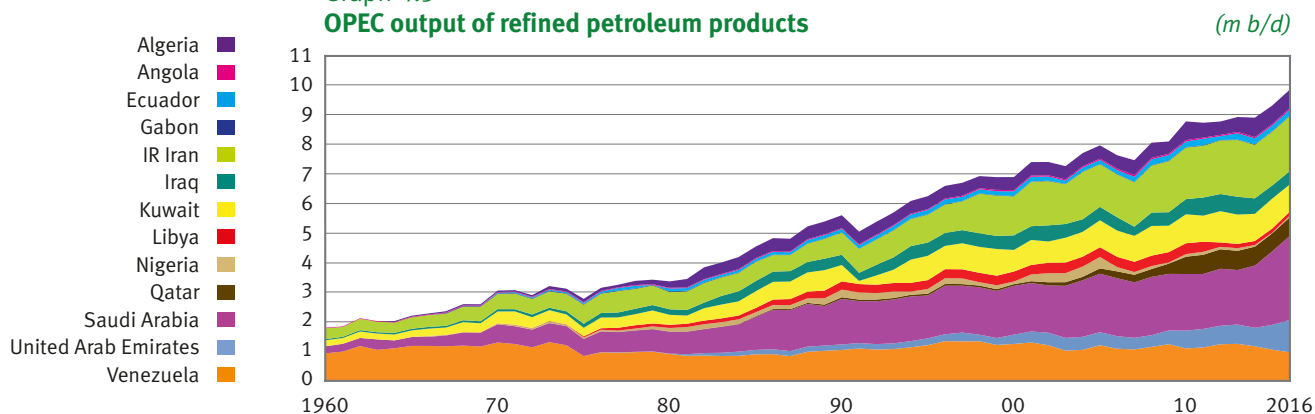




Table 4.9

## World oil demand by main petroleum product and region

(1,000 b/d)

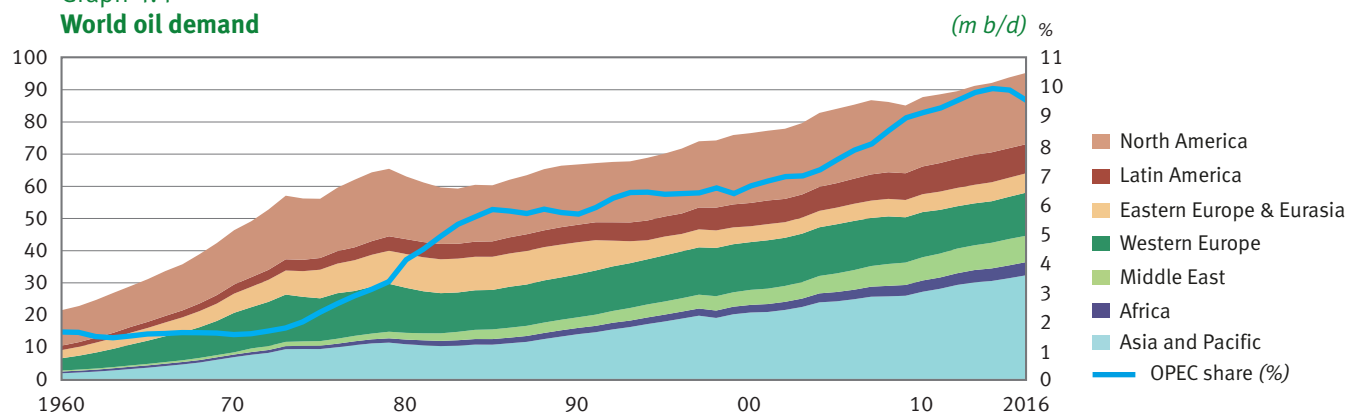
	2012	2013	2014	2015	2016	% change 16/15
<b>North America</b>	<b>20,963.1</b>	<b>21,446.8</b>	<b>21,562.5</b>	<b>21,985.0</b>	<b>22,160.6</b>	<b>0.8</b>
Gasoline	9,720.4	9,749.7	9,818.1	10,003.1	10,224.7	2.2
Kerosene	1,565.3	1,593.8	1,654.4	1,687.4	1,704.6	1.0
Distillates	4,548.0	4,535.0	4,655.4	4,698.8	4,643.0	-1.2
Residuals	513.0	466.0	435.0	421.0	438.0	4.0
Others	4,616.4	5,102.4	4,999.7	5,174.7	5,150.2	-0.5
<b>Latin America</b>	<b>9,094.3</b>	<b>9,294.9</b>	<b>9,305.1</b>	<b>9,170.5</b>	<b>9,046.0</b>	<b>-1.4</b>
Gasoline	2,538.7	2,567.8	2,635.6	2,659.3	2,634.7	-0.9
Kerosene	375.1	389.8	397.9	413.0	394.2	-4.6
Distillates	2,724.5	2,782.3	2,859.9	2,840.3	2,773.7	-2.3
Residuals	1,039.4	1,018.0	985.4	948.9	944.8	-0.4
Others	2,416.7	2,537.0	2,426.2	2,309.0	2,298.7	-0.4
<b>Eastern Europe and Eurasia</b>	<b>5,703.2</b>	<b>5,766.1</b>	<b>5,903.3</b>	<b>5,928.5</b>	<b>6,023.4</b>	<b>1.6</b>
Gasoline	1,379.2	1,379.6	1,372.0	1,372.1	1,373.4	0.1
Kerosene	360.0	340.1	335.0	319.7	320.3	0.2
Distillates	1,593.6	1,632.8	1,828.7	1,855.4	1,952.8	5.2
Residuals	460.8	381.7	375.7	381.6	375.0	-1.7
Others	1,909.6	2,031.8	1,991.9	1,999.8	2,002.0	0.1
<b>Western Europe</b>	<b>13,153.6</b>	<b>13,021.8</b>	<b>12,901.6</b>	<b>13,111.7</b>	<b>13,385.9</b>	<b>2.1</b>
Gasoline	1,851.6	1,793.4	1,773.0	1,784.0	1,785.9	0.1
Kerosene	1,203.6	1,237.3	1,253.8	1,313.2	1,337.6	1.9
Distillates	5,586.9	5,645.8	5,588.1	5,715.7	5,872.4	2.7
Residuals	1,111.7	1,039.8	930.3	900.9	928.7	3.1
Others	3,399.8	3,305.5	3,356.4	3,397.9	3,461.4	1.9
<b>Middle East</b>	<b>7,672.2</b>	<b>7,709.9</b>	<b>7,974.6</b>	<b>8,199.6</b>	<b>8,195.8</b>	<b>-</b>
Gasoline	1,492.5	1,471.8	1,543.9	1,623.0	1,599.4	-1.5
Kerosene	448.1	468.9	518.5	581.7	603.8	3.8
Distillates	2,247.6	2,232.6	2,166.8	2,181.1	2,070.7	-5.1
Residuals	1,381.0	1,418.6	1,465.9	1,471.3	1,600.9	8.8
Others	2,103.0	2,118.0	2,279.5	2,342.5	2,320.9	-0.9
<b>Africa</b>	<b>3,627.5</b>	<b>3,819.1</b>	<b>3,904.2</b>	<b>3,992.0</b>	<b>4,095.3</b>	<b>2.6</b>
Gasoline	940.5	1,011.3	1,085.2	1,129.2	1,175.6	4.1
Kerosene	310.2	313.0	310.7	314.6	305.5	-2.9
Distillates	1,399.0	1,483.9	1,508.2	1,553.9	1,600.2	3.0
Residuals	474.3	421.9	389.2	378.8	384.0	1.4
Others	503.6	589.0	611.0	615.5	630.1	2.4

Table 4.9  
World oil demand by main petroleum product and region

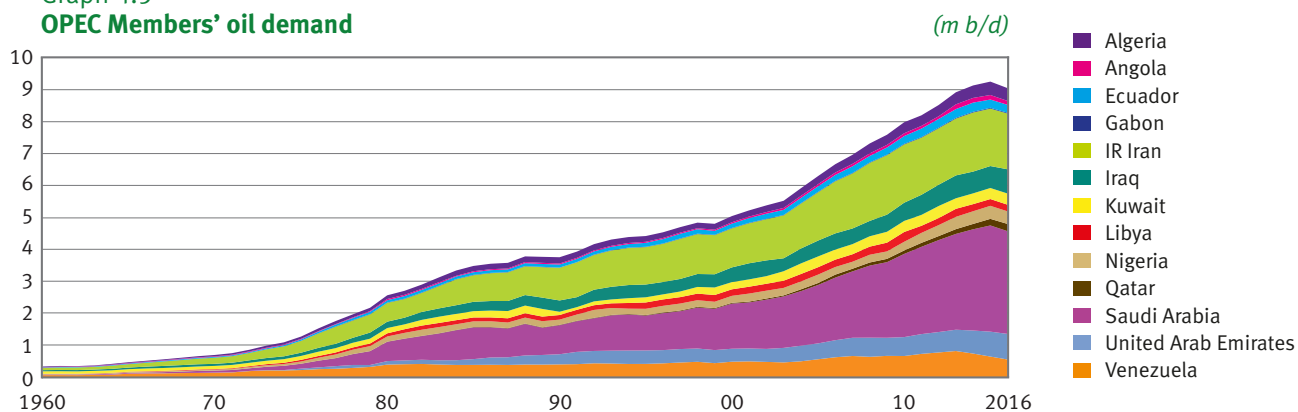
(1,000 b/d)

	2012	2013	2014	2015	2016	% change 16/15
<b>Asia and Pacific</b>	<b>29,214.5</b>	<b>30,015.2</b>	<b>30,439.1</b>	<b>31,290.4</b>	<b>32,208.2</b>	<b>2.9</b>
Gasoline	5,232.5	5,637.5	5,842.7	6,236.6	6,576.4	5.4
Kerosene	2,065.8	2,150.9	2,192.7	2,231.6	2,293.4	2.8
Distillates	8,429.8	8,686.0	8,783.4	9,066.4	9,259.2	2.1
Residuals	2,725.4	2,650.6	2,520.5	2,366.8	2,360.1	-0.3
Others	10,761.0	10,890.3	11,099.9	11,389.0	11,719.0	2.9
<b>Total world</b>	<b>89,428.3</b>	<b>91,073.8</b>	<b>91,990.5</b>	<b>93,677.7</b>	<b>95,115.1</b>	<b>1.5</b>
Gasoline	23,155.4	23,611.1	24,070.6	24,807.3	25,370.0	2.3
Kerosene	6,328.1	6,493.7	6,662.9	6,861.2	6,959.5	1.4
Distillates	26,529.3	26,998.4	27,390.4	27,911.6	28,172.0	0.9
Residuals	7,705.5	7,396.6	7,102.1	6,869.2	7,031.5	2.4
Others	25,710.2	26,573.9	26,764.6	27,228.4	27,582.2	1.3
<i>of which</i>						
<b>OPEC</b>	<b>8,518.6</b>	<b>8,916.6</b>	<b>9,129.8</b>	<b>9,249.7</b>	<b>9,045.2</b>	<b>-2.2</b>
Gasoline	2,001.7	2,096.0	2,161.7	2,223.5	2,168.6	-2.5
Kerosene	472.1	495.3	545.0	590.7	589.9	-0.1
Distillates	2,330.6	2,479.6	2,395.5	2,406.9	2,200.0	-8.6
Residuals	1,390.8	1,444.4	1,496.5	1,489.4	1,603.4	7.7
Others	2,323.5	2,401.3	2,531.0	2,539.2	2,483.2	-2.2
<b>OECD</b>	<b>45,951.5</b>	<b>46,105.1</b>	<b>45,818.2</b>	<b>46,380.3</b>	<b>46,860.4</b>	<b>1.0</b>
Gasoline	14,178.6	14,173.5	14,195.9	14,501.2	14,703.7	1.4
Kerosene	3,761.5	3,801.3	3,879.6	4,024.6	4,175.5	3.8
Distillates	12,816.7	12,853.3	13,037.0	13,185.6	13,137.4	-0.4
Residuals	2,755.4	2,449.3	2,114.1	2,004.3	2,116.0	5.6
Others	12,439.3	12,827.7	12,591.6	12,664.6	12,727.8	0.5
<b>FSU</b>	<b>4,444.9</b>	<b>4,540.0</b>	<b>4,641.0</b>	<b>4,621.2</b>	<b>4,661.9</b>	<b>0.9</b>
Gasoline	1,158.3	1,169.8	1,166.5	1,152.0	1,167.4	1.3
Kerosene	329.0	309.2	291.8	285.0	283.3	-0.6
Distillates	1,002.0	1,043.5	1,244.0	1,246.4	1,295.4	3.9
Residuals	414.0	336.2	337.3	342.8	339.8	-0.9
Others	1,541.6	1,681.3	1,601.3	1,595.0	1,576.0	-1.2

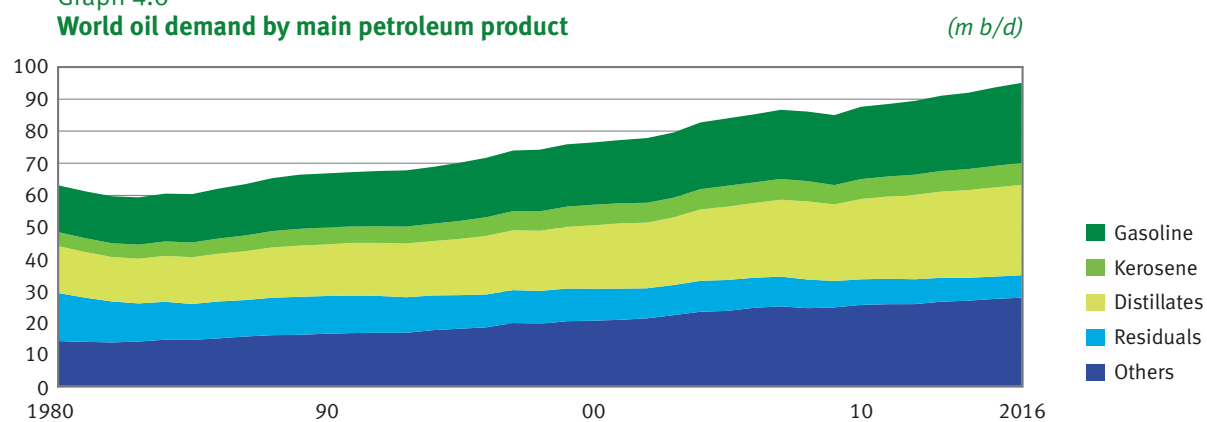
Graph 4.4  
World oil demand



Graph 4.5  
OPEC Members' oil demand



Graph 4.6  
World oil demand by main petroleum product





# SECTION 5

## Oil trade

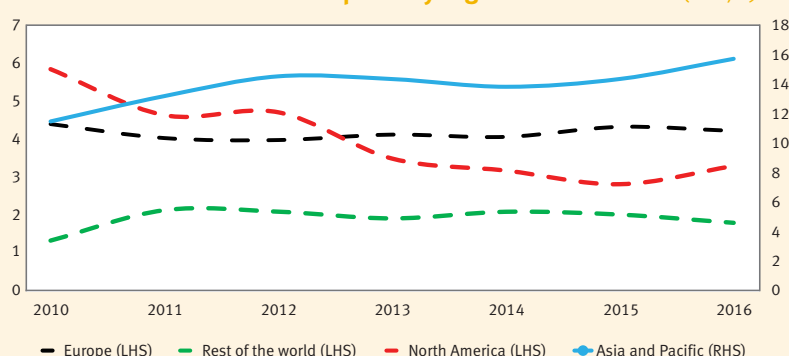


## The significance of OPEC exported crude oil to Asia and Pacific

Since 1980, OPEC Members' share in global crude oil exports has amounted on average to approximately 55 per cent. In 2016 this ratio stood at 57 per cent. Moreover, in the last year, total OPEC crude oil exports stood at 25.0m b/d, up from 23.5m b/d in 2015. This increase represents a growth of approximately six per cent compared to 2015. Significant volumes were exported to Europe, which imported about 4.2m b/d from OPEC Member Countries in 2016 compared to 4.3m b/d in 2015. North America imported 3.3m b/d of crude oil from OPEC Members in 2016, representing a percentage increase of 17.1 points compared to the previous year. However, and as was the case in previous years, the bulk of OPEC crude oil was exported to the Asia and Pacific region at a volume of 15.7m b/d. This implies that this region accounted for almost 63 per cent of total OPEC export volumes. In fact, OPEC Members' share of total exports to Asia over the years has been increasing constantly. The visualized trends, as presented in the graph below, are further summarized in the table below, which presents some general test statistics of a simple linear regression model on OPEC Members' export volumes by region over the years.

OPEC Members' crude oil exports by region

(m b/d)



Summary of statistical results — Simple linear regression models

	Coefficient <sup>1</sup> (m b/d)
Europe	0.005
North America	-0.46*
Asia and Pacific	0.51*
Rest of the World	0.04

1. Slope coefficient of simple linear regression model with OPEC Members' crude oil export volumes as a dependent variable and the year as an independent variable.

\* Statistically significant at  $\alpha = 0.05$  level.

The rising trend in Asia and Pacific can certainly be traced back to ever-growing crude oil demand in this region, with China, India, Japan and South Korea as the major consumers. The relation between total volumes of throughput of Asian refineries and Asian volumes of supply clearly suggests that the need for additional barrels in this region is significant. The graph below highlights that over the last seven years, Asian refineries' needs for additional imported crude oil (including NGLs) increased from 15.5m b/d in 2010 to 20.3m b/d in 2016. This implies a growth of around 31 per cent. For the same period, OPEC Members' contributions to cover these additional barrels needed in Asian refineries was significant. More specifically, and focusing on crude oil, in 2010 OPEC supplied the Asian market with 11.5m b/d and in 2016 this volume increased by 37 per cent to stand at 15.7m b/d. On average over the last seven years, at least 80 per cent of Asian refineries' additional demand for refinery intake that needed to be imported was covered by OPEC Members. A statistical correlation test to examine the relationship between the ever-increasing demand of Asian refineries and total Asian imported volumes of OPEC Members' crude oil yielded a strong positive correlation coefficient of  $r = 0.84$ , which is also statistically significant at the  $\alpha = 0.05$  level.

Imported volumes of throughput for refineries in Asia and Pacific

(m b/d)

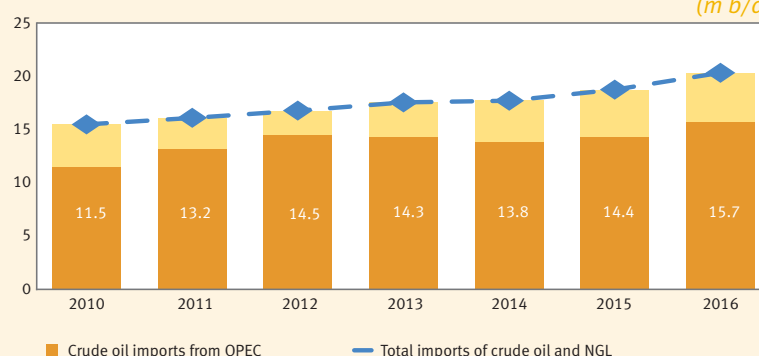


Table 5.1  
OPEC Members' crude oil exports by destination

(1,000 b/d)

	Destination	2012	2013	2014	2015	2016
<b>Algeria</b>		<b>808.6</b>	<b>744.0</b>	<b>622.9</b>	<b>642.2</b>	<b>668.3</b>
	Europe	424.3	522.4	517.6	543.9	394.0
	North America	263.3	101.3	44.8	35.3	143.4
	Asia and Pacific	92.3	81.6	42.1	36.6	86.1
	Latin America	28.7	38.7	18.5	26.4	44.1
	Africa	–	–	–	–	0.7
	Middle East	–	–	–	–	–
<b>Angola</b>		<b>1,663.3</b>	<b>1,669.4</b>	<b>1,607.9</b>	<b>1,710.9</b>	<b>1,670.1</b>
	Europe	200.7	313.3	340.6	435.6	326.5
	North America	236.8	159.0	132.1	114.0	59.9
	Asia and Pacific	1,102.5	1,103.2	1,011.3	1,058.9	1,163.9
	Latin America	47.1	49.9	61.5	31.3	39.0
	Africa	76.2	44.0	62.4	71.2	80.8
	Middle East	–	–	–	–	–
<b>Ecuador</b>		<b>357.7</b>	<b>388.2</b>	<b>422.4</b>	<b>432.9</b>	<b>414.7</b>
	Europe	–	4.9	1.0	–	–
	North America	229.3	255.8	248.7	284.8	274.2
	Asia and Pacific	20.6	20.3	15.7	27.1	38.2
	Latin America	107.8	107.1	147.4	121.0	102.3
	Africa	–	–	9.7	–	–
	Middle East	–	–	–	–	–
<b>Gabon</b>		<b>224.0</b>	<b>207.5</b>	<b>207.4</b>	<b>206.4</b>	<b>205.2</b>
	Europe	17.4	29.1	20.0	53.3	48.4
	North America	42.0	24.0	16.0	10.0	1.2
	Asia and Pacific	149.7	140.8	137.6	126.0	123.4
	Latin America	13.7	12.5	31.2	15.7	29.6
	Africa	1.2	1.1	2.7	1.4	2.6
	Middle East	–	–	–	–	–
<b>IR Iran</b>		<b>2,102.0</b>	<b>1,215.4</b>	<b>1,109.2</b>	<b>1,081.1</b>	<b>1,921.7</b>
	Europe	162.0	128.0	117.0	111.4	497.3
	North America	–	–	–	–	–
	Asia and Pacific	1,839.0	1,085.2	992.2	969.7	1,423.6
	Latin America	–	–	–	–	–
	Africa	101.0	2.2	–	–	0.8
	Middle East	–	–	–	–	–
<b>Iraq</b>		<b>2,423.4</b>	<b>2,390.4</b>	<b>2,515.5</b>	<b>3,004.9</b>	<b>3,803.5</b>
	Europe	546.7	534.9	625.2	844.8	981.8
	North America	559.0	432.7	411.7	220.0	416.9
	Asia and Pacific	1,205.2	1,412.9	1,465.9	1,876.2	2,270.6
	Latin America	105.4	–	12.7	63.8	134.3
	Africa	–	–	–	–	–
	Middle East	7.1	9.8	–	–	–
<b>Kuwait</b>		<b>2,070.0</b>	<b>2,058.5</b>	<b>1,994.8</b>	<b>1,963.8</b>	<b>2,128.2</b>
	Europe	99.0	84.2	105.9	118.0	181.1
	North America	220.0	320.3	277.3	196.5	244.5
	Asia and Pacific	1,699.0	1,613.5	1,550.6	1,561.1	1,643.4
	Latin America	–	–	3.0	–	–
	Africa	52.0	40.6	58.0	88.2	59.2
	Middle East	–	–	–	–	–



Table 5.1  
OPEC Members' crude oil exports by destination

(1,000 b/d)

	Destination	2012	2013	2014	2015	2016
<b>Libya</b>		<b>962.0</b>	<b>589.1</b>	<b>319.0</b>	<b>262.2</b>	<b>254.7</b>
	Europe	716.9	533.7	289.0	237.5	219.8
	North America	27.5	5.2	2.8	2.3	12.0
	Asia and Pacific	211.7	45.0	24.4	20.0	20.8
	Latin America	4.2	1.7	0.9	0.8	–
	Africa	1.7	3.5	1.9	1.6	2.1
	Middle East	–	–	–	–	–
<b>Nigeria</b>		<b>2,368.0</b>	<b>2,193.0</b>	<b>2,120.1</b>	<b>2,114.0</b>	<b>1,738.0</b>
	Europe	744.0	965.0	968.9	992.3	611.5
	North America	1,224.0	395.0	74.2	83.6	307.1
	Asia and Pacific	91.0	373.0	558.0	550.3	489.4
	Latin America	206.0	263.0	248.4	209.1	81.3
	Africa	103.0	197.0	270.6	278.7	248.7
	Middle East	–	–	–	–	–
<b>Qatar</b>		<b>588.3</b>	<b>598.7</b>	<b>595.5</b>	<b>490.7</b>	<b>503.4</b>
	Europe	–	–	–	–	–
	North America	–	–	–	–	–
	Asia and Pacific	588.3	598.7	595.5	488.7	501.4
	Latin America	–	–	–	–	–
	Africa	–	–	–	2.0	2.0
	Middle East	–	–	–	–	–
<b>Saudi Arabia</b>		<b>7,556.8</b>	<b>7,570.7</b>	<b>7,153.5</b>	<b>7,163.3</b>	<b>7,463.4</b>
	Europe	990.8	951.9	952.1	877.3	870.8
	North America	1,423.4	1,459.0	1,251.3	1,190.8	1,177.0
	Asia and Pacific	4,577.4	4,586.2	4,416.7	4,592.0	4,918.1
	Latin America	68.4	79.6	68.9	70.0	71.4
	Africa	216.1	221.9	191.0	147.0	153.1
	Middle East	280.6	272.2	273.4	286.3	272.9
<b>United Arab Emirates</b>		<b>2,445.2</b>	<b>2,701.4</b>	<b>2,496.7</b>	<b>2,441.5</b>	<b>2,407.8</b>
	Europe	1.7	6.4	9.9	17.0	18.4
	North America	–	2.5	13.4	–	6.6
	Asia and Pacific	2,402.9	2,661.8	2,446.7	2,385.5	2,361.0
	Latin America	–	–	–	–	–
	Africa	38.2	30.6	22.3	32.0	20.5
	Middle East	2.5	0.1	4.5	7.0	1.3
<b>Venezuela</b>		<b>1,724.8</b>	<b>1,528.0</b>	<b>1,964.9</b>	<b>1,974.2</b>	<b>1,835.0</b>
	Europe	68.6	41.5	109.1	88.3	63.6
	North America	478.6	328.9	694.3	670.8	645.9
	Asia and Pacific	555.2	626.8	569.4	662.3	682.8
	Latin America	622.4	530.8	592.0	552.8	442.7
	Africa	–	–	–	–	–
	Middle East	–	–	–	–	–
<b>OPEC</b>		<b>25,293.8</b>	<b>23,854.2</b>	<b>23,129.8</b>	<b>23,488.1</b>	<b>25,013.9</b>
	Europe	3,972.2	4,115.3	4,056.2	4,319.4	4,213.2
	North America	4,703.8	3,483.6	3,166.6	2,808.0	3,288.7
	Asia and Pacific	14,534.6	14,349.0	13,825.9	14,354.6	15,722.6
	Latin America	1,203.6	1,083.4	1,184.5	1,090.8	944.7
	Africa	589.4	540.8	618.7	622.0	570.5
	Middle East	290.1	282.2	277.8	293.2	274.2

**Notes:**

Data may include lease condensates and volumes of oil in transit.

Table 5.2

## OPEC Members' petroleum products exports by destination

(1,000 b/d)

	Destination	2012	2013	2014	2015	2016
<b>Algeria</b>		<b>449.2</b>	<b>453.0</b>	<b>582.6</b>	<b>605.4</b>	<b>541.1</b>
	Europe	188.9	196.2	246.3	243.3	220.5
	North America	106.2	81.2	114.8	111.9	108.5
	Asia and Pacific	25.1	59.4	90.4	114.0	52.9
	Latin America	75.5	54.1	69.7	65.7	73.5
	Africa	52.9	60.8	60.7	67.6	63.2
	Middle East	0.6	1.3	0.6	2.9	22.5
<b>Angola</b>		<b>29.9</b>	<b>32.2</b>	<b>31.0</b>	<b>36.7</b>	<b>54.3</b>
	Europe	12.0	6.3	6.7	7.3	15.5
	North America	11.2	13.3	13.2	17.5	11.0
	Asia and Pacific	4.1	10.7	10.1	10.9	20.3
	Latin America	1.8	1.3	–	–	6.3
	Africa	0.8	0.6	1.0	1.0	1.2
	Middle East	–	–	–	–	–
<b>Ecuador</b>		<b>27.4</b>	<b>19.7</b>	<b>7.7</b>	<b>15.6</b>	<b>31.4</b>
	Europe	–	–	–	–	–
	North America	6.1	3.4	1.0	4.9	2.2
	Asia and Pacific	–	–	–	–	–
	Latin America	21.3	16.3	6.7	10.7	29.2
	Africa	–	–	–	–	–
	Middle East	–	–	–	–	–
<b>Gabon</b>		<b>4.7</b>	<b>6.0</b>	<b>5.5</b>	<b>5.8</b>	<b>5.6</b>
	Europe	1.6	0.3	1.6	4.3	1.4
	North America	2.4	0.9	1.3	1.0	0.5
	Asia and Pacific	–	–	–	–	–
	Latin America	–	–	–	–	–
	Africa	0.7	4.8	2.7	0.5	3.7
	Middle East	–	–	–	–	–
<b>IR Iran</b>		<b>456.0</b>	<b>394.0</b>	<b>469.9</b>	<b>514.3</b>	<b>897.9</b>
	Europe	–	–	–	–	7.7
	North America	–	–	–	–	–
	Asia and Pacific	456.0	394.0	469.3	513.6	889.4
	Latin America	–	–	–	–	–
	Africa	–	–	0.6	0.7	0.8
	Middle East	–	–	–	–	–
<b>Iraq</b>		<b>2.2</b>	<b>11.5</b>	<b>9.3</b>	<b>13.7</b>	<b>36.8</b>
	Europe	0.2	3.1	0.1	4.4	0.1
	North America	–	–	–	–	1.8
	Asia and Pacific	0.3	–	–	–	–
	Latin America	–	–	–	–	–
	Africa	–	–	–	–	–
	Middle East	1.7	8.4	9.2	9.3	35.0
<b>Kuwait</b>		<b>804.2</b>	<b>805.3</b>	<b>751.1</b>	<b>739.4</b>	<b>707.4</b>
	Europe	54.3	84.8	90.6	70.6	46.3
	North America	2.5	2.1	2.2	0.5	0.6
	Asia and Pacific	747.4	718.4	658.3	668.3	660.4
	Latin America	–	–	–	–	–
	Africa	–	–	–	–	–
	Middle East	–	–	–	–	–

Table 5.2

## OPEC Members' petroleum products exports by destination

(1,000 b/d)

	Destination	2012	2013	2014	2015	2016
<b>Libya</b>		<b>53.1</b>	<b>83.3</b>	<b>38.0</b>	<b>32.3</b>	<b>34.3</b>
	Europe	46.6	55.5	27.1	23.9	21.8
	North America	3.4	9.2	–	1.1	0.8
	Asia and Pacific	2.3	9.3	6.2	3.7	5.0
	Latin America	–	3.5	1.7	1.4	3.2
	Africa	0.2	1.5	0.7	0.6	1.2
	Middle East	0.6	4.5	2.2	1.8	2.4
<b>Nigeria</b>		<b>21.4</b>	<b>23.1</b>	<b>49.3</b>	<b>18.0</b>	<b>17.9</b>
	Europe	8.7	8.2	7.1	3.8	5.0
	North America	11.0	13.1	23.6	9.1	9.0
	Asia and Pacific	1.7	–	18.5	5.1	3.9
	Latin America	–	1.8	0.1	–	–
	Africa	–	–	–	–	–
	Middle East	–	–	–	–	–
<b>Qatar</b>		<b>465.9</b>	<b>511.0</b>	<b>522.1</b>	<b>521.0</b>	<b>568.1</b>
	Europe	–	–	–	–	–
	North America	–	–	–	–	–
	Asia and Pacific	465.9	511.0	522.1	521.0	568.1
	Latin America	–	–	–	–	–
	Africa	–	–	–	–	–
	Middle East	–	–	–	–	–
<b>Saudi Arabia</b>		<b>862.1</b>	<b>794.0</b>	<b>987.8</b>	<b>1,154.7</b>	<b>1,502.6</b>
	Europe	110.8	76.4	112.7	180.7	224.4
	North America	1.5	–	12.9	–	1.5
	Asia and Pacific	490.7	499.9	548.7	578.9	734.0
	Latin America	12.4	8.3	13.0	4.1	7.4
	Africa	95.3	91.5	114.3	195.2	238.7
	Middle East	151.4	117.8	186.1	195.8	296.6
<b>United Arab Emirates</b>		<b>275.8</b>	<b>280.2</b>	<b>255.9</b>	<b>414.8</b>	<b>630.0</b>
	Europe	36.3	27.9	25.3	0.2	0.4
	North America	2.4	2.8	1.8	–	–
	Asia and Pacific	220.5	226.4	210.7	318.7	484.1
	Latin America	–	–	–	0.9	1.3
	Africa	6.6	8.5	11.2	0.2	0.3
	Middle East	10.1	14.6	6.9	94.7	143.9
<b>Venezuela</b>		<b>674.5</b>	<b>713.2</b>	<b>312.4</b>	<b>317.8</b>	<b>262.5</b>
	Europe	47.9	42.7	6.5	9.8	9.8
	North America	335.7	402.1	58.1	54.1	49.5
	Asia and Pacific	–	15.2	–	–	0.4
	Latin America	270.0	246.0	242.5	246.7	196.6
	Africa	20.9	7.3	5.3	7.1	6.2
	Middle East	–	–	–	–	–
<b>OPEC</b>		<b>4,126.4</b>	<b>4,126.5</b>	<b>4,022.5</b>	<b>4,389.5</b>	<b>5,290.1</b>
	Europe	507.4	501.3	524.1	548.3	552.9
	North America	482.5	528.0	228.8	200.1	185.3
	Asia and Pacific	2,413.9	2,444.3	2,534.2	2,734.2	3,418.5
	Latin America	381.0	331.3	333.9	329.4	317.6
	Africa	177.4	175.0	196.6	273.0	315.4
	Middle East	164.3	146.6	205.0	304.5	500.4

## Notes:

Data may include re-exports and volumes of oil in transit.

Table 5.3

## World crude oil exports by country

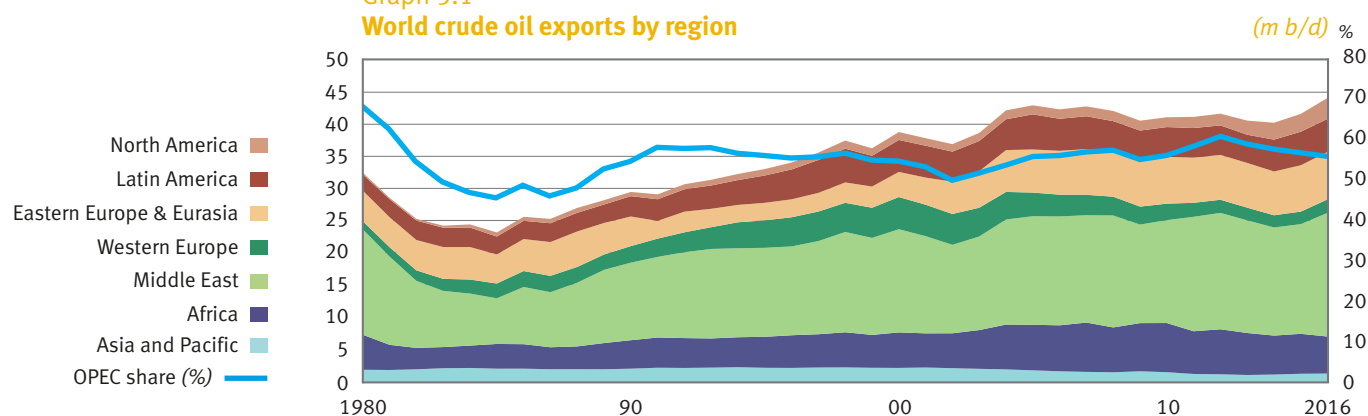
(1,000 b/d)

	2012	2013	2014	2015	2016	% change 16/15
<b>North America</b>	<b>1,823.9</b>	<b>2,192.7</b>	<b>2,627.2</b>	<b>2,765.8</b>	<b>3,261.6</b>	<b>17.9</b>
Canada	1,756.9	2,058.7	2,276.2	2,301.2	2,742.1	19.2
United States	67.0	134.0	351.0	464.6	519.6	11.8
<b>Latin America</b>	<b>4,578.4</b>	<b>4,383.3</b>	<b>4,945.4</b>	<b>5,213.3</b>	<b>5,122.1</b>	<b>-1.7</b>
Brazil	487.7	365.6	517.3	736.0	891.3	21.1
Colombia	555.0	703.3	722.0	736.1	613.5	-16.7
Ecuador	357.7	388.2	422.4	432.9	414.7	-4.2
Mexico	1,333.1	1,270.7	1,219.8	1,247.1	1,274.3	2.2
Trinidad & Tobago	30.8	38.2	34.2	29.1	28.3	-2.9
Venezuela	1,724.8	1,528.0	1,964.9	1,974.2	1,835.0	-7.1
Others	89.4	89.4	64.8	57.9	65.1	12.5
<b>Eastern Europe and Eurasia</b>	<b>6,967.7</b>	<b>6,943.4</b>	<b>6,800.3</b>	<b>7,196.6</b>	<b>7,381.7</b>	<b>2.6</b>
Azerbaijan	698.4	692.1	669.4	663.1	655.1	-1.2
Kazakhstan	1,365.0	1,378.0	1,390.1	1,393.3	1,385.6	-0.6
Russia	4,757.1	4,689.4	4,488.8	4,897.3	5,080.6	3.7
Others	147.2	184.0	251.9	242.9	260.4	7.2
<b>Western Europe</b>	<b>2,038.4</b>	<b>1,968.8</b>	<b>1,891.9</b>	<b>1,949.4</b>	<b>2,095.5</b>	<b>7.5</b>
Norway	1,303.0	1,198.5	1,203.2	1,234.7	1,372.7	11.2
United Kingdom	576.1	614.4	570.7	594.8	620.3	4.3
Others	159.3	155.9	117.9	120.0	102.5	-14.5
<b>Middle East</b>	<b>18,076.8</b>	<b>17,497.2</b>	<b>16,792.8</b>	<b>17,037.3</b>	<b>19,211.1</b>	<b>12.8</b>
IR Iran	2,102.0	1,215.4	1,109.2	1,081.1	1,921.7	77.7
Iraq	2,423.4	2,390.4	2,515.5	3,004.9	3,803.5	26.6
Kuwait	2,070.0	2,058.5	1,994.8	1,963.8	2,128.2	8.4
Oman	768.4	838.2	804.3	788.0	887.5	12.6
Qatar	588.3	598.7	595.5	490.7	503.4	2.6
Saudi Arabia	7,556.8	7,570.7	7,153.5	7,163.3	7,463.4	4.2
United Arab Emirates	2,445.2	2,701.4	2,496.7	2,441.5	2,407.8	-1.4
Others	122.8	124.0	123.4	104.0	95.5	-8.2
<b>Africa</b>	<b>6,993.9</b>	<b>6,522.2</b>	<b>6,053.7</b>	<b>6,201.7</b>	<b>5,746.9</b>	<b>-7.3</b>
Algeria	808.6	744.0	622.9	642.2	668.3	4.1
Angola	1,663.3	1,669.4	1,607.9	1,710.9	1,670.1	-2.4
Congo	252.0	240.7	260.9	227.0	254.3	12.0
Egypt	91.0	96.5	117.0	155.8	164.6	5.7
Gabon	224.0	207.5	207.4	206.4	205.2	-0.6
Libya	962.0	589.1	319.0	262.2	254.7	-2.8
Nigeria	2,368.0	2,193.0	2,120.1	2,114.0	1,738.0	-17.8
Sudans	60.0	133.0	168.0	166.0	162.4	-2.2
Others	565.1	649.1	630.5	717.3	629.4	-12.3
<b>Asia and Pacific</b>	<b>1,239.0</b>	<b>1,131.1</b>	<b>1,199.9</b>	<b>1,324.2</b>	<b>1,356.2</b>	<b>2.4</b>
Australia	260.9	205.6	244.3	221.8	199.5	-10.1
Brunei	139.0	114.6	108.0	112.0	104.7	-6.5
China	48.9	32.0	12.2	57.2	58.3	2.0
Indonesia	228.9	228.6	255.9	315.1	334.5	6.2
Malaysia	267.8	263.4	278.4	365.5	390.0	6.7
Vietnam	185.0	170.3	173.4	143.6	146.3	1.8
Others	108.6	116.6	127.7	108.9	122.9	12.9
<b>Total world</b>	<b>41,718.1</b>	<b>40,638.8</b>	<b>40,311.1</b>	<b>41,688.3</b>	<b>44,175.0</b>	<b>6.0</b>
<i>of which</i>						
OPEC	25,293.8	23,854.2	23,129.8	23,488.1	25,013.9	6.5
<i>OPEC percentage</i>	<i>60.6</i>	<i>58.7</i>	<i>57.4</i>	<i>56.3</i>	<i>56.6</i>	
OECD	5,488.5	5,666.4	6,019.0	6,217.2	6,866.7	10.4
FSU	6,944.3	6,928.2	6,760.0	6,976.8	7,144.9	2.4

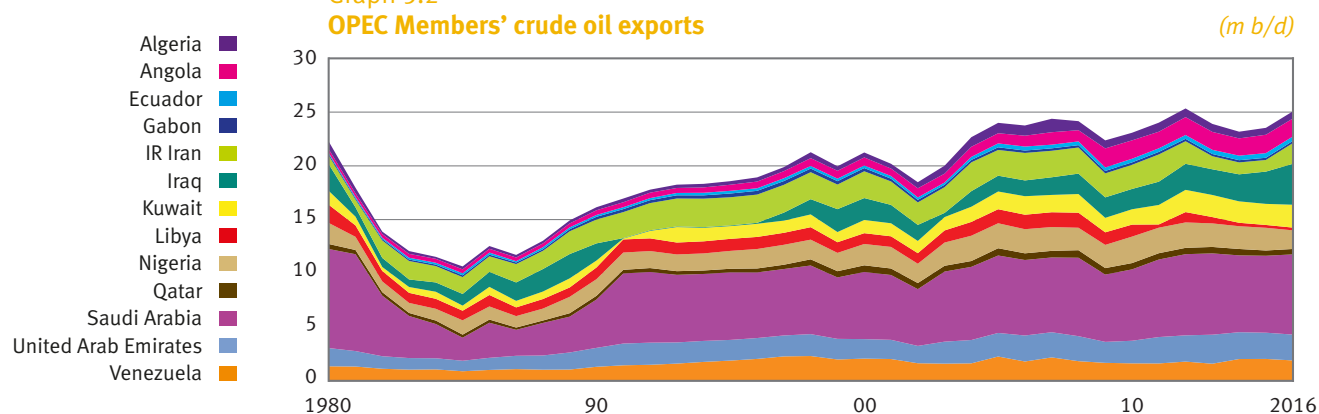
## Notes:

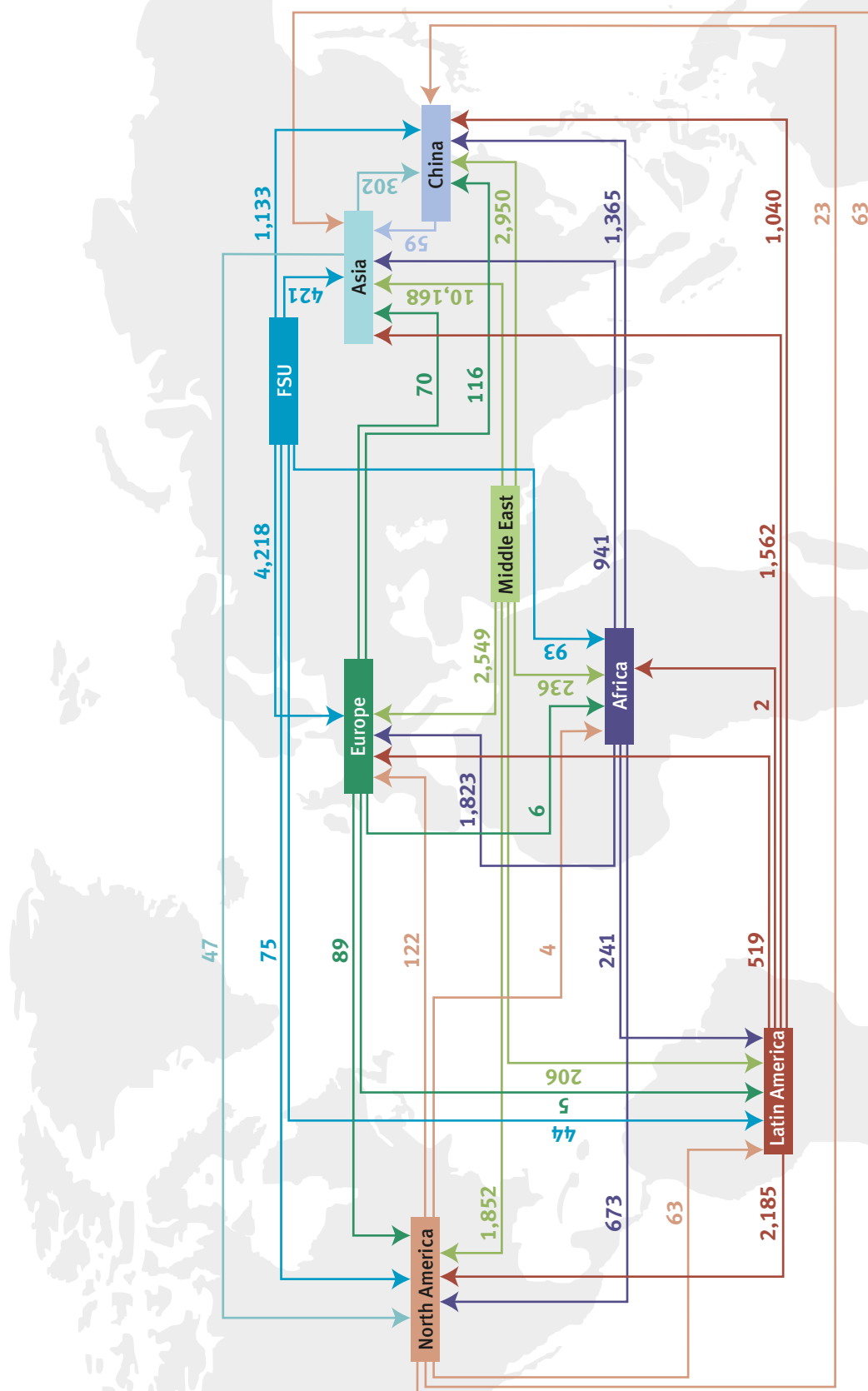
Data may include lease condensates and volumes of oil in transit.

Graph 5.1  
World crude oil exports by region



Graph 5.2  
OPEC Members' crude oil exports





**Notes:**  
Excluding intraregional trade.

Table 5.4

## World exports of petroleum products by country

(1,000 b/d)

	2012	2013	2014	2015	2016	% change 16/15
<b>North America</b>	<b>3,605.2</b>	<b>3,992.2</b>	<b>4,288.0</b>	<b>4,756.9</b>	<b>5,103.9</b>	<b>7.3</b>
Canada	468.2	505.2	464.0	483.9	435.9	-9.9
United States	3,137.0	3,487.0	3,824.0	4,273.0	4,668.0	9.2
<b>Latin America</b>	<b>1,627.1</b>	<b>1,672.6</b>	<b>1,202.1</b>	<b>1,198.1</b>	<b>1,239.9</b>	<b>3.5</b>
Brazil	163.0	153.6	160.0	130.2	133.8	2.8
Ecuador	27.4	19.7	7.7	15.6	31.4	101.4
Mexico	143.3	183.3	201.3	195.9	183.1	-6.6
Trinidad & Tobago	69.9	91.7	69.9	91.5	121.0	32.3
Venezuela	674.5	713.2	312.4	317.8	262.5	-17.4
Others	548.9	511.2	450.7	447.2	508.2	13.6
<b>Eastern Europe and Eurasia</b>	<b>3,194.6</b>	<b>3,223.6</b>	<b>3,325.3</b>	<b>3,529.7</b>	<b>3,265.3</b>	<b>-7.5</b>
Romania	66.8	68.8	88.8	89.5	97.3	8.8
Russia	2,259.2	2,468.6	2,610.7	2,725.8	2,501.7	-8.2
Others	868.6	686.2	625.7	714.4	666.3	-6.7
<b>Western Europe</b>	<b>6,357.8</b>	<b>6,355.2</b>	<b>6,358.7</b>	<b>6,935.5</b>	<b>7,059.2</b>	<b>1.8</b>
Belgium	390.3	493.7	523.9	531.7	537.8	1.1
France	426.2	405.7	411.3	440.3	426.8	-3.1
Germany	384.0	413.6	433.5	453.4	448.1	-1.2
Italy	585.8	490.4	417.5	564.8	582.2	3.1
Netherlands	2,112.7	2,079.3	2,081.2	2,245.3	2,303.5	2.6
Norway	378.0	360.2	372.4	402.2	351.8	-12.5
Spain	348.7	369.0	384.7	411.5	422.9	2.8
Sweden	266.3	191.9	245.9	297.7	312.6	5.0
United Kingdom	568.9	553.2	483.8	484.9	523.1	7.9
Others	896.9	998.4	1,004.5	1,103.6	1,150.3	4.2
<b>Middle East</b>	<b>3,270.5</b>	<b>3,159.3</b>	<b>3,369.9</b>	<b>3,712.9</b>	<b>4,709.1</b>	<b>26.8</b>
Bahrain	245.9	247.5	248.3	249.3	230.3	-7.6
IR Iran	456.0	394.0	469.9	514.3	897.9	74.6
Iraq	2.2	11.5	9.3	13.7	36.8	168.4
Kuwait	804.2	805.3	751.1	739.4	707.4	-4.3
Qatar	465.9	511.0	522.1	521.0	568.1	9.0
Saudi Arabia	862.1	794.0	987.8	1,154.7	1,502.6	30.1
United Arab Emirates	275.8	280.2	255.9	414.8	630.0	51.9
Others	158.4	115.7	125.6	105.7	136.0	28.7
<b>Africa</b>	<b>774.3</b>	<b>840.5</b>	<b>930.5</b>	<b>905.0</b>	<b>841.9</b>	<b>-7.0</b>
Algeria	449.2	453.0	582.6	605.4	541.1	-10.6
Angola	29.9	32.2	31.0	36.7	54.3	48.1
Egypt	56.5	46.5	47.8	49.0	50.9	4.0
Gabon	4.7	6.0	5.5	5.8	5.6	-3.1
Libya	53.1	83.3	38.0	32.3	34.3	6.0
Nigeria	21.4	23.1	49.3	18.0	17.9	-0.4
Others	159.4	196.4	176.4	157.8	137.7	-12.7
<b>Asia and Pacific</b>	<b>6,379.7</b>	<b>6,841.1</b>	<b>6,809.9</b>	<b>7,068.4</b>	<b>7,673.8</b>	<b>8.6</b>
Australia	63.9	57.4	55.8	46.6	51.1	9.5
China	569.6	665.8	692.7	836.4	1,088.5	30.1
India	1,288.7	1,475.1	1,374.1	1,245.4	1,401.7	12.6
Indonesia	70.5	87.4	88.5	89.1	82.9	-7.0
Japan	439.5	513.3	509.3	559.5	594.8	6.3
Malaysia	401.8	492.1	486.7	460.1	520.8	13.2
Singapore	1,731.1	1,742.5	1,771.9	1,884.5	2,008.7	6.6
South Korea	1,192.6	1,161.9	1,206.1	1,279.5	1,312.9	2.6
Others	622.1	645.7	624.8	667.3	612.7	-8.2
<b>Total world</b>	<b>25,209.2</b>	<b>26,084.4</b>	<b>26,284.3</b>	<b>28,106.5</b>	<b>29,893.1</b>	<b>6.4</b>
<i>of which</i>						
OPEC	4,126.4	4,126.5	4,022.5	4,389.5	5,290.1	20.5
<i>OPEC percentage</i>	<i>16.4</i>	<i>15.8</i>	<i>15.3</i>	<i>15.6</i>	<i>17.7</i>	
OECD	12,063.4	12,576.5	12,944.8	14,112.1	14,597.4	3.4
FSU	2,810.0	3,057.8	3,279.5	3,318.3	3,061.0	-7.8

## Notes:

Data may include re-exports and volumes of oil in transit.



(1,000 b/d)

Graph 5.4  
OPEC Members' petroleum products exports by destination, 2016

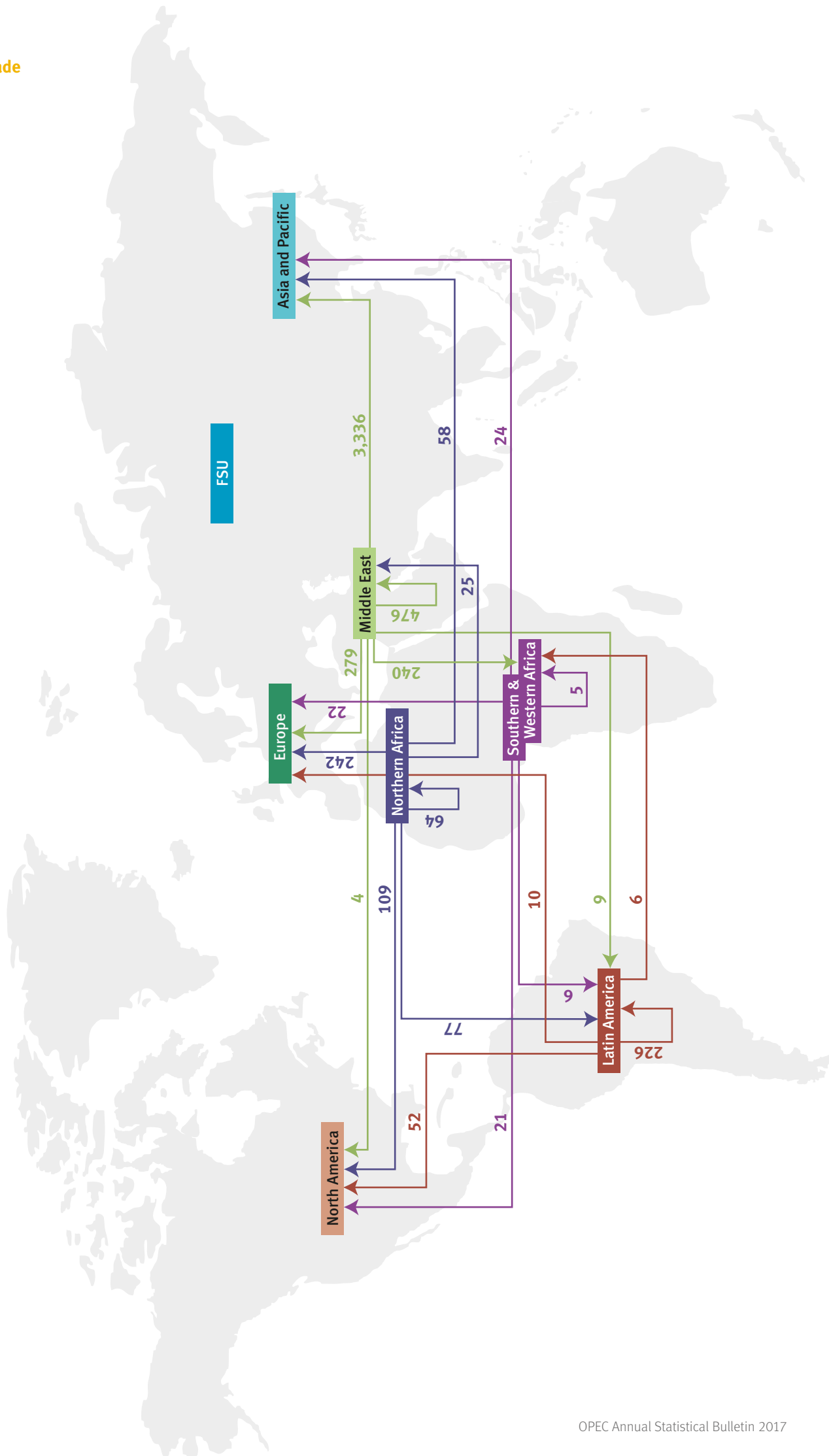


Table 5.5

## World exports of petroleum products by main petroleum product and region

(1,000 b/d)

	2012	2013	2014	2015	2016	% change 16/15
<b>North America</b>	<b>3,605.2</b>	<b>3,992.2</b>	<b>4,288.0</b>	<b>4,756.9</b>	<b>5,103.9</b>	<b>7.3</b>
Gasoline	645.0	649.4	690.4	791.1	931.5	17.7
Kerosene	141.6	165.9	171.3	180.4	185.3	2.7
Distillates	1,163.9	1,292.0	1,236.3	1,324.4	1,325.6	0.1
Residuals	458.0	445.3	429.9	385.5	342.5	-11.1
Others	1,196.6	1,439.6	1,760.2	2,075.5	2,319.0	11.7
<b>Latin America</b>	<b>1,627.1</b>	<b>1,672.6</b>	<b>1,202.1</b>	<b>1,198.1</b>	<b>1,239.9</b>	<b>3.5</b>
Gasoline	110.1	110.3	103.1	93.4	121.4	30.0
Kerosene	83.3	87.5	71.0	67.9	54.6	-19.6
Distillates	153.7	110.5	87.0	84.0	145.6	73.3
Residuals	591.4	606.7	598.6	548.6	587.2	7.0
Others	688.6	757.6	342.4	404.2	331.1	-18.1
<b>Eastern Europe and Eurasia</b>	<b>3,194.6</b>	<b>3,223.6</b>	<b>3,325.3</b>	<b>3,529.7</b>	<b>3,265.3</b>	<b>-7.5</b>
Gasoline	318.0	342.5	354.4	400.8	409.3	2.1
Kerosene	58.8	69.1	96.4	91.8	94.0	2.3
Distillates	1,257.0	1,238.1	1,349.6	1,524.6	1,431.6	-6.1
Residuals	1,340.9	1,339.8	1,261.5	1,243.2	1,009.8	-18.8
Others	220.0	234.1	263.4	269.2	320.6	19.1
<b>Western Europe</b>	<b>6,357.8</b>	<b>6,355.2</b>	<b>6,358.7</b>	<b>6,935.5</b>	<b>7,059.2</b>	<b>1.8</b>
Gasoline	1,613.3	1,563.8	1,585.9	1,809.1	1,806.6	-0.1
Kerosene	319.4	335.4	292.0	298.1	316.1	6.0
Distillates	1,858.5	1,862.3	1,827.0	1,911.6	2,003.8	4.8
Residuals	1,155.9	1,197.5	1,268.4	1,419.4	1,310.8	-7.7
Others	1,410.8	1,396.1	1,385.4	1,497.3	1,622.0	8.3
<b>Middle East</b>	<b>3,270.5</b>	<b>3,159.3</b>	<b>3,369.9</b>	<b>3,712.9</b>	<b>4,709.1</b>	<b>26.8</b>
Gasoline	470.5	340.4	416.0	538.1	676.3	25.7
Kerosene	602.0	576.0	575.0	623.1	738.1	18.4
Distillates	520.1	510.3	552.3	580.5	724.7	24.8
Residuals	420.8	327.3	390.2	500.3	620.2	24.0
Others	1,257.2	1,405.3	1,436.4	1,470.8	1,949.9	32.6
<b>Africa</b>	<b>774.3</b>	<b>840.5</b>	<b>930.5</b>	<b>905.0</b>	<b>841.9</b>	<b>-7.0</b>
Gasoline	15.5	9.6	8.6	10.4	22.6	116.4
Kerosene	41.7	70.0	58.1	40.3	41.4	2.6
Distillates	6.4	9.4	12.9	14.1	10.8	-23.4
Residuals	195.3	202.7	210.9	211.8	315.3	48.9
Others	515.4	548.9	640.0	628.3	451.7	-28.1

Table 5.5

**World exports of petroleum products by main petroleum product and region***(1,000 b/d)*

	2012	2013	2014	2015	2016	% change 16/15
<b>Asia and Pacific</b>	<b>6,379.7</b>	<b>6,841.1</b>	<b>6,809.9</b>	<b>7,068.4</b>	<b>7,673.8</b>	<b>8.6</b>
Gasoline	1,259.7	1,453.1	1,520.7	1,506.3	1,674.2	11.1
Kerosene	474.6	541.6	550.3	638.6	634.8	-0.6
Distillates	1,692.5	1,785.2	1,758.9	1,904.9	2,229.1	17.0
Residuals	1,531.7	1,670.6	1,566.8	1,652.2	1,692.0	2.4
Others	1,421.3	1,390.6	1,413.1	1,366.5	1,443.7	5.7
<b>Total world</b>	<b>25,209.2</b>	<b>26,084.4</b>	<b>26,284.3</b>	<b>28,106.5</b>	<b>29,893.1</b>	<b>6.4</b>
Gasoline	4,432.0	4,469.0	4,679.0	5,149.2	5,641.8	9.6
Kerosene	1,721.3	1,845.6	1,814.0	1,940.2	2,064.1	6.4
Distillates	6,652.0	6,807.7	6,824.1	7,344.2	7,871.3	7.2
Residuals	5,694.0	5,790.0	5,726.2	5,961.0	5,877.8	-1.4
Others	6,709.9	7,172.1	7,240.9	7,711.9	8,438.1	9.4
<i>of which</i>						
<b>OPEC</b>	<b>4,126.4</b>	<b>4,126.5</b>	<b>4,022.5</b>	<b>4,389.5</b>	<b>5,290.1</b>	<b>20.5</b>
Gasoline	100.9	67.3	135.1	217.5	336.2	54.6
Kerosene	557.1	536.2	547.4	530.5	617.5	16.4
Distillates	447.3	424.6	572.3	750.4	1,128.7	50.4
Residuals	914.5	841.3	826.0	880.0	1,144.4	30.0
Others	2,106.5	2,257.1	1,941.8	2,011.1	2,063.3	2.6
<b>OECD</b>	<b>12,063.4</b>	<b>12,576.5</b>	<b>12,944.8</b>	<b>14,112.1</b>	<b>14,597.4</b>	<b>3.4</b>
Gasoline	2,484.6	2,515.2	2,580.7	2,942.9	3,059.3	4.0
Kerosene	770.9	824.5	784.0	847.0	879.4	3.8
Distillates	3,723.2	3,858.0	3,815.6	4,026.1	4,086.5	1.5
Residuals	1,873.8	1,911.8	1,982.1	2,055.9	1,918.0	-6.7
Others	3,210.9	3,467.0	3,782.3	4,240.2	4,654.1	9.8
<b>FSU</b>	<b>2,810.0</b>	<b>3,057.8</b>	<b>3,279.5</b>	<b>3,318.3</b>	<b>3,061.0</b>	<b>-7.8</b>
Gasoline	180.5	210.8	254.2	275.0	285.6	3.9
Kerosene	44.7	59.3	88.7	80.2	82.8	3.2
Distillates	1,154.9	1,230.9	1,384.1	1,500.3	1,412.4	-5.9
Residuals	1,301.0	1,407.2	1,352.5	1,285.7	1,043.1	-18.9
Others	129.0	149.5	200.0	177.1	237.0	33.9

**Notes:**

Data may include re-exports and volumes of oil in transit.

Table 5.6

## World exports of crude oil and petroleum products by country

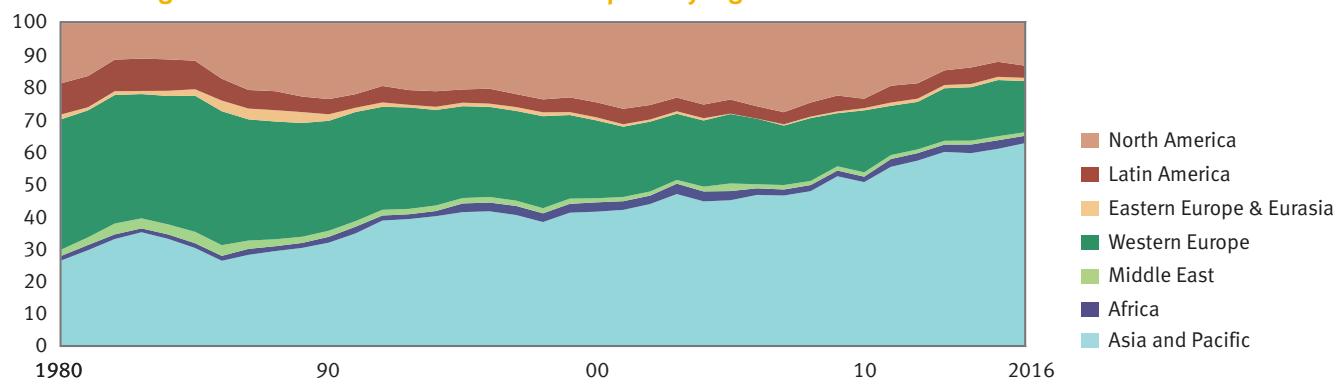
(1,000 b/d)

	2012	2013	2014	2015	2016	% change 16/15
<b>North America</b>	<b>5,429.1</b>	<b>6,184.8</b>	<b>6,915.1</b>	<b>7,522.7</b>	<b>8,365.5</b>	<b>11.2</b>
Canada	2,225.1	2,563.8	2,740.1	2,785.2	3,178.0	14.1
United States	3,204.0	3,621.0	4,175.0	4,737.6	5,187.6	9.5
<b>Latin America</b>	<b>6,205.4</b>	<b>6,055.9</b>	<b>6,147.5</b>	<b>6,411.4</b>	<b>6,362.0</b>	<b>-0.8</b>
Brazil	650.7	519.2	677.3	866.2	1,025.0	18.3
Colombia	650.8	787.6	821.4	789.6	710.4	-10.0
Ecuador	385.1	407.9	430.2	448.5	446.1	-0.5
Mexico	1,476.4	1,453.9	1,421.2	1,443.0	1,457.4	1.0
Trinidad & Tobago	100.7	129.9	104.1	120.5	149.3	23.8
Venezuela	2,399.2	2,241.2	2,277.2	2,292.0	2,097.5	-8.5
Others	542.5	516.3	416.1	451.6	476.4	5.5
<b>Eastern Europe and Eurasia</b>	<b>10,162.3</b>	<b>10,167.0</b>	<b>10,125.6</b>	<b>10,726.4</b>	<b>10,646.9</b>	<b>-0.7</b>
Azerbaijan	741.0	731.5	716.8	711.2	691.9	-2.7
Kazakhstan	1,507.8	1,522.2	1,535.6	1,539.1	1,530.6	-0.6
Russia	7,016.3	7,158.0	7,099.6	7,623.2	7,582.3	-0.5
Others	897.1	755.4	773.6	852.9	842.2	-1.3
<b>Western Europe</b>	<b>8,396.2</b>	<b>8,324.0</b>	<b>8,250.6</b>	<b>8,884.9</b>	<b>9,154.7</b>	<b>3.0</b>
Belgium	390.3	493.7	523.9	531.7	537.8	1.1
France	426.2	407.2	411.3	440.3	426.8	-3.1
Germany	387.9	414.3	434.1	460.1	450.2	-2.1
Italy	600.4	500.9	424.6	579.0	594.8	2.7
Netherlands	2,123.7	2,090.3	2,093.6	2,251.2	2,310.1	2.6
Norway	1,681.0	1,558.6	1,575.7	1,636.9	1,724.6	5.4
United Kingdom	1,145.0	1,167.6	1,054.5	1,079.7	1,143.4	5.9
Others	1,641.6	1,691.4	1,732.9	1,906.0	1,967.1	3.2
<b>Middle East</b>	<b>21,347.3</b>	<b>20,656.5</b>	<b>20,162.7</b>	<b>20,750.2</b>	<b>23,920.2</b>	<b>15.3</b>
Bahrain	245.9	247.5	248.3	249.3	264.3	6.0
IR Iran	2,558.0	1,609.4	1,579.1	1,595.5	2,819.7	76.7
Iraq	2,425.5	2,401.9	2,524.8	3,018.6	3,840.3	27.2
Kuwait	2,874.2	2,863.8	2,745.9	2,703.2	2,835.6	4.9
Oman	804.5	862.3	829.0	814.0	912.5	12.1
Qatar	1,054.1	1,109.7	1,117.5	1,011.7	1,071.5	5.9
Saudi Arabia	8,418.9	8,364.7	8,141.3	8,318.1	8,965.9	7.8
United Arab Emirates	2,721.0	2,981.6	2,752.6	2,856.2	3,037.8	6.4
Others	245.1	215.6	224.2	183.7	172.6	-6.1
<b>Africa</b>	<b>7,768.1</b>	<b>7,362.7</b>	<b>6,984.3</b>	<b>7,106.7</b>	<b>6,588.8</b>	<b>-7.3</b>
Algeria	1,257.7	1,196.9	1,205.5	1,247.6	1,209.4	-3.1
Angola	1,693.2	1,701.6	1,638.9	1,747.6	1,724.4	-1.3
Congo	264.9	256.4	282.4	241.9	271.8	12.4
Egypt	147.5	143.0	164.8	204.7	215.5	5.3
Gabon	228.7	213.5	213.0	212.2	210.8	-0.6
Libya	1,015.1	672.4	357.0	294.5	289.0	-1.9
Nigeria	2,389.4	2,216.1	2,169.4	2,132.0	1,755.9	-17.6
Sudans	66.0	142.0	176.0	174.0	171.4	-1.5
Others	705.6	820.7	777.4	852.1	740.5	-13.1
<b>Asia and Pacific</b>	<b>7,618.8</b>	<b>7,972.2</b>	<b>8,009.7</b>	<b>8,392.6</b>	<b>9,030.0</b>	<b>7.6</b>
Australia	324.7	262.9	300.1	268.5	250.6	-6.7
Brunei	140.3	116.3	109.3	113.8	106.9	-6.0
China	618.5	697.8	704.9	893.5	1,146.8	28.3
India	1,288.7	1,475.1	1,374.1	1,245.4	1,401.7	12.6
Indonesia	299.4	316.0	344.4	404.3	417.4	3.3
Japan	439.5	513.3	509.3	559.5	594.8	6.3
Malaysia	669.6	755.5	765.1	825.6	910.8	10.3
Singapore	1,737.1	1,742.8	1,773.9	1,893.4	2,013.6	6.3
South Korea	1,192.6	1,161.9	1,206.1	1,279.5	1,312.9	2.6
Vietnam	220.0	203.3	206.4	175.6	177.3	0.9
Others	688.4	727.2	716.2	733.5	697.4	-4.9
<b>Total world</b>	<b>66,927.3</b>	<b>66,723.2</b>	<b>66,595.4</b>	<b>69,794.8</b>	<b>74,068.2</b>	<b>6.1</b>
<i>of which</i>						
OPEC	29,420.2	27,980.7	27,152.3	27,877.6	30,304.0	8.7
<i>OPEC percentage</i>	<i>44.0</i>	<i>41.9</i>	<i>40.8</i>	<i>39.9</i>	<i>40.9</i>	
OECD	17,551.9	18,242.9	18,963.8	20,329.3	21,464.1	5.6
FSU	9,754.3	9,986.0	10,039.5	10,295.2	10,205.9	-0.9

## Notes:

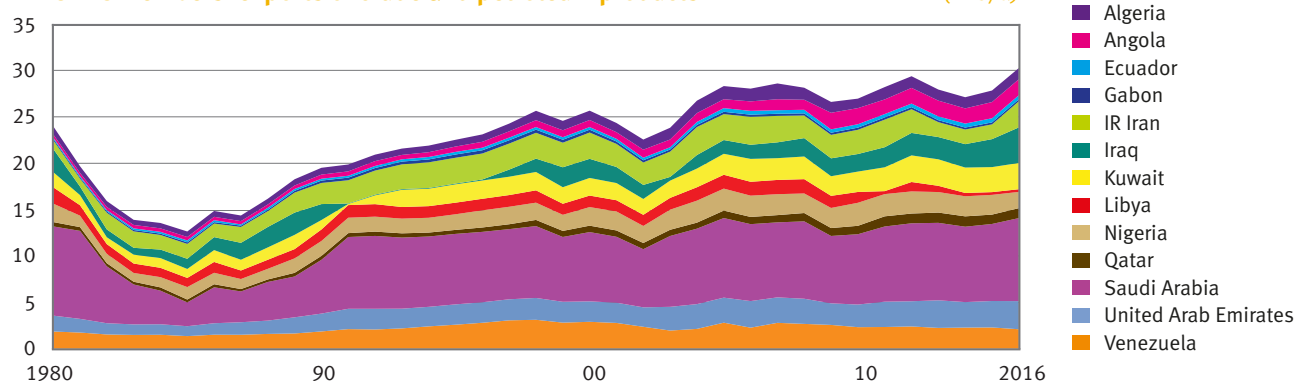
Data may include lease condensates, re-exports of petroleum products and volumes of oil in transit.

Graph 5.5  
Percentage share of OPEC Members' crude oil exports by regions



Graph 5.6  
OPEC Members' exports of crude and petroleum products

(m b/d)



Graph 5.7  
OPEC Members' exports of petroleum products

(1,000 b/d)

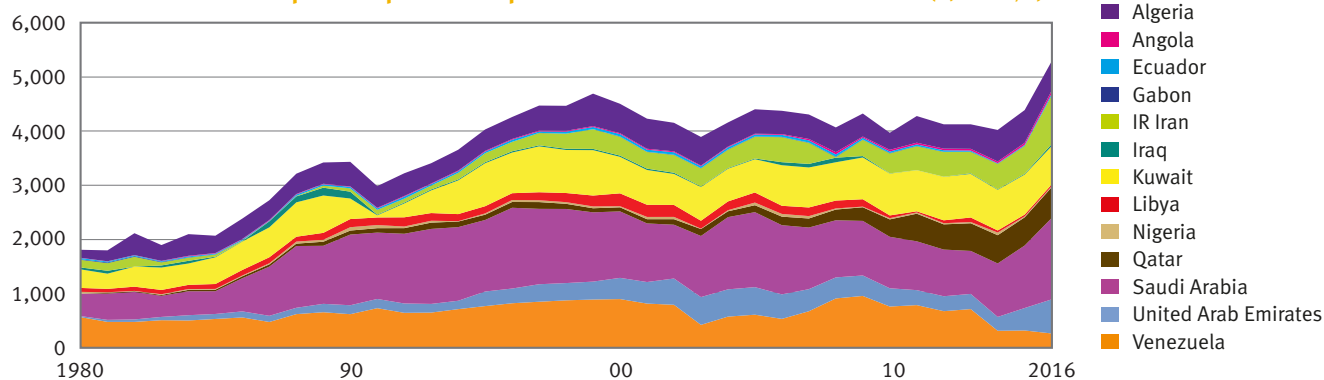


Table 5.7

## World imports of crude oil by country

(1,000 b/d)

	2012	2013	2014	2015	2016	% change 16/15
<b>North America</b>	<b>9,241.1</b>	<b>8,381.4</b>	<b>7,907.6</b>	<b>7,928.5</b>	<b>8,767.8</b>	<b>10.6</b>
Canada	714.1	651.4	563.6	565.5	890.8	57.5
United States	8,527.0	7,730.0	7,344.0	7,363.0	7,877.0	7.0
<b>Latin America</b>	<b>998.0</b>	<b>1,070.5</b>	<b>1,027.7</b>	<b>934.6</b>	<b>837.3</b>	<b>-10.4</b>
Brazil	311.5	363.5	333.3	251.7	134.3	-46.7
Chile	174.8	194.8	188.8	176.8	175.3	-0.8
Cuba	98.3	99.0	101.6	103.2	105.4	2.2
Trinidad & Tobago	62.4	70.9	65.2	63.8	63.7	-0.1
Others	351.0	342.4	338.7	339.2	358.6	5.7
<b>Eastern Europe and Eurasia</b>	<b>1,839.6</b>	<b>1,791.0</b>	<b>1,812.5</b>	<b>1,940.7</b>	<b>1,771.3</b>	<b>-8.7</b>
Belarus	433.4	454.0	453.8	461.9	365.6	-20.9
Bulgaria	124.6	113.3	102.4	121.4	124.2	2.3
Czech Republic	142.4	132.3	148.7	144.1	107.7	-25.3
Hungary	109.7	108.7	122.0	125.1	121.4	-2.9
Poland	496.1	471.4	478.8	534.0	495.8	-7.2
Romania	103.8	108.7	138.4	135.5	153.2	13.0
Others	429.5	402.7	368.3	418.7	403.4	-3.6
<b>Western Europe</b>	<b>10,417.6</b>	<b>9,908.8</b>	<b>9,748.9</b>	<b>10,432.2</b>	<b>10,303.4</b>	<b>-1.2</b>
Belgium	639.5	558.4	650.0	647.9	644.2	-0.6
France	1,142.8	1,110.1	1,076.7	1,145.8	1,095.7	-4.4
Germany	1,882.9	1,828.4	1,806.8	1,843.1	1,843.0	-
Greece	419.3	392.1	420.5	445.7	474.7	6.5
Italy	1,381.1	1,178.7	1,085.9	1,261.6	1,228.8	-2.6
Netherlands	1,004.1	952.1	957.2	1,056.5	1,095.1	3.7
Spain	1,183.0	1,168.5	1,191.5	1,306.0	1,296.0	-0.8
Sweden	416.6	338.8	378.0	406.2	397.2	-2.2
Turkey	392.4	374.8	353.1	505.9	503.8	-0.4
United Kingdom	1,080.5	1,017.6	940.2	856.2	798.9	-6.7
Others	875.4	989.1	888.9	957.3	926.0	-3.3
<b>Middle East</b>	<b>516.8</b>	<b>504.3</b>	<b>499.1</b>	<b>536.0</b>	<b>501.2</b>	<b>-6.5</b>
Bahrain	219.9	218.9	211.1	246.4	212.4	-13.8
Others	296.9	285.4	288.0	289.5	288.7	-0.3
<b>Africa</b>	<b>782.8</b>	<b>676.8</b>	<b>757.5</b>	<b>702.3</b>	<b>653.1</b>	<b>-7.0</b>
Morocco	105.0	113.0	104.9	43.0	-	-
South Africa	465.2	405.8	458.9	466.7	469.5	0.6
Others	212.6	158.0	193.7	192.6	183.5	-4.7
<b>Asia and Pacific</b>	<b>19,249.4</b>	<b>19,303.2</b>	<b>19,680.5</b>	<b>20,570.7</b>	<b>22,074.3</b>	<b>7.3</b>
Australia	498.3	450.7	440.9	318.2	333.6	4.8
China	5,423.8	5,657.7	6,177.5	6,730.9	7,625.4	13.3
India	3,682.2	3,792.6	3,791.4	3,935.5	4,308.3	9.5
Indonesia	329.5	401.7	383.2	374.4	366.1	-2.2
Japan	3,457.5	3,408.9	3,244.6	3,233.5	3,157.8	-2.3
Malaysia	245.2	201.3	236.7	202.3	223.8	10.7
New Zealand	106.0	104.2	100.2	103.2	109.4	6.0
Philippines	185.3	151.8	183.6	188.8	212.0	12.3
Singapore	832.2	782.8	784.7	804.8	895.1	11.2
South Korea	2,555.0	2,450.3	2,475.7	2,781.1	2,938.0	5.6
Thailand	860.3	868.0	805.8	874.0	852.6	-2.5
Others	1,074.0	1,033.2	1,056.3	1,024.0	1,052.3	2.8
<b>Total world</b>	<b>43,045.2</b>	<b>41,636.0</b>	<b>41,433.8</b>	<b>43,045.0</b>	<b>44,908.3</b>	<b>4.3</b>
<i>of which</i>						
OECD	27,450.3	25,861.3	25,120.9	26,038.2	26,253.2	0.8
FSU	736.7	748.4	724.5	770.9	661.3	-14.2

## Notes:

Data may include lease condensates and volumes of oil in transit.

(1,000 b/d)

Graph 5.8  
OPEC Members' crude oil exports by destination, 2016

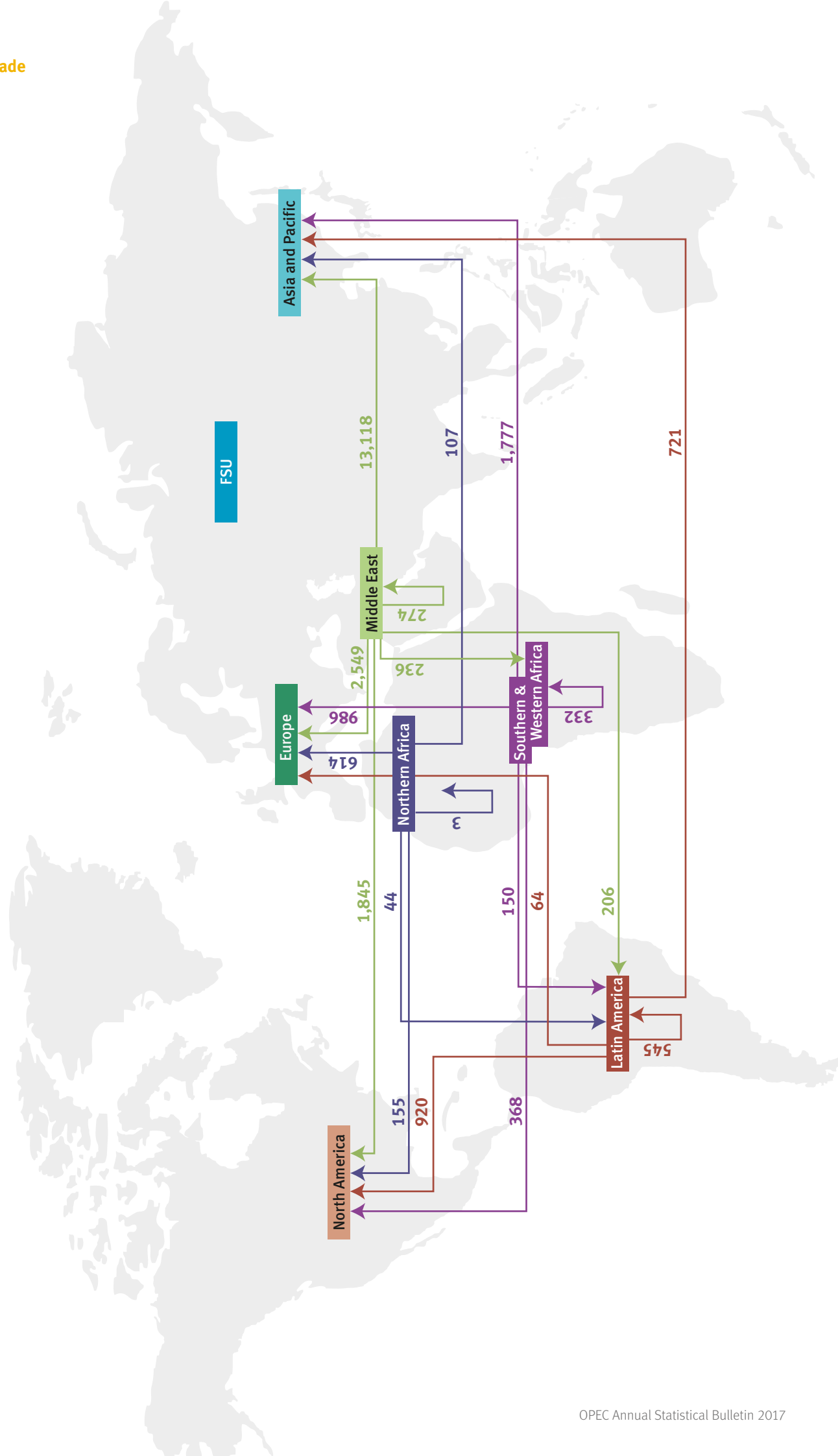




Table 5.8

## World imports of petroleum products by country

(1,000 b/d)

	2012	2013	2014	2015	2016	% change 16/15
<b>North America</b>	<b>2,288.1</b>	<b>2,346.5</b>	<b>2,138.6</b>	<b>2,326.7</b>	<b>2,426.6</b>	<b>4.3</b>
Canada	217.1	217.5	241.6	240.7	245.6	2.0
United States	2,071.0	2,129.0	1,897.0	2,086.0	2,181.0	4.6
<b>Latin America</b>	<b>2,340.6</b>	<b>2,306.4</b>	<b>2,464.5</b>	<b>2,669.9</b>	<b>2,538.8</b>	<b>-4.9</b>
Brazil	567.8	544.4	610.5	556.1	550.5	-1.0
Chile	138.0	140.0	134.9	154.0	156.3	1.5
Ecuador	117.9	133.2	157.4	151.7	122.6	-19.2
Mexico	646.8	559.9	616.4	712.1	745.1	4.6
Panama	60.7	58.8	62.3	58.4	66.1	13.1
Venezuela	145.0	133.0	158.3	187.1	160.2	-14.4
Others	664.5	737.1	724.8	850.6	738.1	-13.2
<b>Eastern Europe and Eurasia</b>	<b>813.8</b>	<b>810.5</b>	<b>865.4</b>	<b>901.6</b>	<b>982.6</b>	<b>9.0</b>
Bulgaria	30.8	31.8	33.5	37.6	39.0	3.8
Hungary	40.7	45.2	48.0	57.0	65.5	15.0
Poland	104.2	107.7	120.6	127.2	169.7	33.4
Ukraine	175.5	153.3	168.8	163.1	196.2	20.3
Others	462.6	472.5	494.5	516.8	512.2	-0.9
<b>Western Europe</b>	<b>6,706.6</b>	<b>7,039.4</b>	<b>7,026.2</b>	<b>7,318.5</b>	<b>7,660.8</b>	<b>4.7</b>
Belgium	389.3	545.8	490.1	546.7	552.9	1.1
France	900.1	881.4	897.3	857.0	824.2	-3.8
Germany	688.6	802.1	791.9	800.1	805.8	0.7
Italy	205.7	260.2	252.5	261.9	324.7	24.0
Netherlands	1,870.9	1,843.3	1,792.5	1,900.5	1,931.5	1.6
Spain	328.5	284.1	330.3	321.7	363.8	13.1
Turkey	444.5	461.1	480.2	498.3	527.5	5.9
United Kingdom	538.2	595.4	607.8	652.4	734.3	12.5
Others	1,340.8	1,366.0	1,383.7	1,479.9	1,596.2	7.9
<b>Middle East</b>	<b>1,474.9</b>	<b>1,555.9</b>	<b>1,665.4</b>	<b>1,844.1</b>	<b>1,848.5</b>	<b>0.2</b>
IR Iran	5.9	15.0	39.9	52.5	61.6	17.4
Iraq	103.2	84.0	99.0	81.1	91.7	13.0
Qatar	0.0	6.0	5.4	32.8	20.6	-37.0
Saudi Arabia	319.9	482.0	465.0	588.0	591.1	0.5
United Arab Emirates	289.8	292.1	349.8	358.0	340.2	-5.0
Others	756.3	676.8	706.3	731.8	743.3	1.6
<b>Africa</b>	<b>1,681.7</b>	<b>1,613.7</b>	<b>1,632.8</b>	<b>1,896.3</b>	<b>1,886.1</b>	<b>-0.5</b>
Algeria	93.8	101.6	55.3	83.2	73.3	-11.9
Angola	92.3	89.2	99.1	134.5	75.8	-43.7
Egypt	239.5	177.6	185.8	367.2	351.3	-4.3
Gabon	7.9	8.2	8.8	9.7	10.5	7.9
Libya	85.9	151.6	98.9	90.2	89.9	-0.4
Morocco	160.8	166.3	163.2	161.0	256.8	59.5
Nigeria	351.6	331.0	438.7	441.0	423.4	-4.0
Tunisia	61.0	61.3	67.6	81.3	74.6	-8.3
Others	588.9	526.9	515.6	528.1	530.7	0.5
<b>Asia and Pacific</b>	<b>8,417.1</b>	<b>8,900.3</b>	<b>9,158.5</b>	<b>9,807.9</b>	<b>10,027.0</b>	<b>2.2</b>
Australia	378.5	423.2	429.7	545.5	553.4	1.4
China	1,017.9	1,093.1	957.7	1,150.9	1,220.3	6.0
India	405.3	372.3	487.9	636.5	814.1	27.9
Indonesia	467.2	461.4	554.6	506.0	498.6	-1.5
Japan	1,089.1	1,003.3	992.7	972.9	868.9	-10.7
Malaysia	381.9	516.9	543.3	588.1	661.6	12.5
Singapore	2,167.8	2,310.1	2,388.5	2,575.8	2,515.8	-2.3
South Korea	852.8	899.4	885.7	844.2	900.6	6.7
Others	1,656.6	1,820.7	1,918.4	1,988.0	1,993.8	0.3
<b>Total world</b>	<b>23,722.8</b>	<b>24,572.8</b>	<b>24,951.4</b>	<b>26,765.1</b>	<b>27,370.5</b>	<b>2.3</b>
<i>of which</i>						
OPEC	1,613.1	1,826.9	1,975.5	2,209.9	2,060.9	-6.7
<i>OPEC percentage</i>	6.8	7.4	7.9	8.3	7.5	
OECD	12,315.2	12,629.9	12,434.6	13,102.5	13,608.9	3.9
FSU	553.4	429.6	477.8	495.0	518.2	4.7

## Notes:

Data may include re-exports and volumes of oil in transit.

Table 5.9

## World imports of petroleum products by main petroleum product and region

(1,000 b/d)

	2012	2013	2014	2015	2016	% change 16/15
<b>North America</b>	<b>2,288.1</b>	<b>2,346.5</b>	<b>2,138.6</b>	<b>2,326.7</b>	<b>2,426.6</b>	<b>4.3</b>
Gasoline	725.7	696.0	657.1	733.5	752.2	2.5
Kerosene	95.4	124.8	133.3	173.5	173.7	0.1
Distillates	141.0	175.3	224.7	236.6	229.7	-2.9
Residuals	267.3	241.8	190.7	198.4	201.0	1.3
Others	1,058.6	1,108.5	932.8	984.6	1,070.1	8.7
<b>Latin America</b>	<b>2,340.6</b>	<b>2,306.4</b>	<b>2,464.5</b>	<b>2,669.9</b>	<b>2,538.8</b>	<b>-4.9</b>
Gasoline	638.1	594.2	829.6	939.4	981.9	4.5
Kerosene	57.1	47.0	54.3	76.4	66.4	-13.0
Distillates	710.5	747.0	737.9	714.3	768.8	7.6
Residuals	165.3	139.3	111.3	129.5	68.5	-47.1
Others	769.6	778.9	731.4	810.3	653.2	-19.4
<b>Eastern Europe and Eurasia</b>	<b>813.8</b>	<b>810.5</b>	<b>865.4</b>	<b>901.6</b>	<b>982.6</b>	<b>9.0</b>
Gasoline	146.7	148.2	189.6	155.1	152.9	-1.4
Kerosene	15.2	10.3	30.5	4.5	4.7	4.4
Distillates	384.0	383.1	422.0	462.7	499.9	8.0
Residuals	22.9	26.1	24.5	31.0	41.6	34.3
Others	245.0	242.9	198.7	248.2	283.5	14.2
<b>Western Europe</b>	<b>6,706.6</b>	<b>7,039.4</b>	<b>7,026.2</b>	<b>7,318.5</b>	<b>7,660.8</b>	<b>4.7</b>
Gasoline	727.4	650.5	641.1	700.4	724.3	3.4
Kerosene	640.3	718.8	699.8	731.2	783.5	7.1
Distillates	2,354.0	2,593.0	2,464.1	2,649.3	2,801.5	5.7
Residuals	1,127.2	1,133.3	1,161.5	1,204.9	1,108.4	-8.0
Others	1,857.7	1,943.9	2,059.7	2,032.7	2,243.2	10.4
<b>Middle East</b>	<b>1,474.9</b>	<b>1,555.9</b>	<b>1,665.4</b>	<b>1,844.1</b>	<b>1,848.5</b>	<b>0.2</b>
Gasoline	521.6	528.3	646.1	723.4	696.8	-3.7
Kerosene	18.7	14.3	57.0	69.4	173.4	150.0
Distillates	682.9	700.3	737.8	711.1	609.8	-14.2
Residuals	206.2	256.5	165.2	236.8	313.0	32.2
Others	45.5	56.5	59.3	103.5	55.5	-46.4
<b>Africa</b>	<b>1,681.7</b>	<b>1,613.7</b>	<b>1,632.8</b>	<b>1,896.3</b>	<b>1,886.1</b>	<b>-0.5</b>
Gasoline	588.2	601.3	557.8	524.2	714.1	36.2
Kerosene	148.6	131.0	180.8	113.0	29.6	-73.8
Distillates	638.5	608.7	490.5	647.0	598.8	-7.4
Residuals	81.8	60.0	184.0	209.0	140.3	-32.9
Others	224.6	212.8	219.8	403.1	403.3	-

Table 5.9

**World imports of petroleum products by main petroleum product and region***(1,000 b/d)*

	2012	2013	2014	2015	2016	% change 16/15
<b>Asia and Pacific</b>	<b>8,417.1</b>	<b>8,900.3</b>	<b>9,158.5</b>	<b>9,807.9</b>	<b>10,027.0</b>	<b>2.2</b>
Gasoline	1,302.3	1,437.1	1,517.4	1,571.7	1,405.9	-10.5
Kerosene	470.9	522.1	481.6	504.3	488.6	-3.1
Distillates	1,309.6	1,406.2	1,433.5	1,365.7	1,371.1	0.4
Residuals	2,986.6	3,182.3	3,014.8	3,128.3	2,737.6	-12.5
Others	2,347.8	2,352.6	2,711.1	3,237.9	4,023.8	24.3
<b>Total world</b>	<b>23,722.8</b>	<b>24,572.8</b>	<b>24,951.4</b>	<b>26,765.1</b>	<b>27,370.5</b>	<b>2.3</b>
Gasoline	4,650.0	4,655.6	5,038.7	5,347.7	5,428.1	1.5
Kerosene	1,446.3	1,568.4	1,637.3	1,672.4	1,719.9	2.8
Distillates	6,220.5	6,613.6	6,510.6	6,786.7	6,879.6	1.4
Residuals	4,857.4	5,039.3	4,852.0	5,138.0	4,610.4	-10.3
Others	6,548.7	6,696.0	6,912.8	7,820.3	8,732.5	11.7
<i>of which</i>						
<b>OPEC</b>	<b>1,613.1</b>	<b>1,826.9</b>	<b>1,975.5</b>	<b>2,209.9</b>	<b>2,060.9</b>	<b>-6.7</b>
Gasoline	543.1	609.2	670.2	721.4	787.4	9.2
Kerosene	87.3	74.2	106.0	116.0	121.6	4.9
Distillates	572.1	707.1	662.7	668.3	593.6	-11.2
Residuals	118.6	155.2	119.2	170.6	213.2	25.0
Others	291.9	281.2	417.5	533.6	345.0	-35.3
<b>OECD</b>	<b>12,315.2</b>	<b>12,629.9</b>	<b>12,434.6</b>	<b>13,102.5</b>	<b>13,608.9</b>	<b>3.9</b>
Gasoline	1,926.0	1,777.7	1,748.5	1,977.1	2,060.9	4.2
Kerosene	81.7	93.5	83.9	82.8	80.1	-3.3
Distillates	3,150.0	3,382.1	3,362.7	3,622.1	3,862.9	6.6
Residuals	1,616.8	1,618.2	1,560.6	1,564.5	1,464.6	-6.4
Others	5,540.7	5,758.3	5,678.9	5,855.9	6,140.4	4.9
<b>FSU</b>	<b>553.4</b>	<b>429.6</b>	<b>477.8</b>	<b>495.0</b>	<b>518.2</b>	<b>4.7</b>
Gasoline	126.8	103.8	144.0	120.6	111.2	-7.8
Kerosene	15.0	7.5	3.3	2.4	2.8	16.8
Distillates	281.0	235.5	257.6	275.3	266.8	-3.1
Residuals	22.4	21.2	18.4	28.9	39.3	36.2
Others	108.3	61.7	54.4	67.8	98.1	44.6

**Notes:**

Data may include re-exports and volumes of oil in transit.

Table 5.10

## World imports of crude oil and petroleum products by country

(1,000 b/d)

	2012	2013	2014	2015	2016	% change 16/15
<b>North America</b>	<b>11,529.2</b>	<b>10,727.9</b>	<b>10,046.3</b>	<b>10,255.2</b>	<b>11,194.5</b>	<b>9.2</b>
Canada	931.2	868.9	805.3	806.2	1,136.5	41.0
United States	10,598.0	9,859.0	9,241.0	9,449.0	10,058.0	6.4
<b>Latin America</b>	<b>3,338.6</b>	<b>3,376.9</b>	<b>3,492.2</b>	<b>3,604.5</b>	<b>3,376.1</b>	<b>-6.3</b>
Brazil	879.3	907.9	943.8	807.8	684.8	-15.2
Chile	312.8	334.7	323.7	330.7	331.6	0.3
Cuba	123.3	127.0	131.6	133.2	135.4	1.7
Ecuador	117.9	133.2	157.4	151.7	122.6	-19.2
Mexico	646.8	559.9	616.4	712.1	745.1	4.6
Panama	60.7	58.8	62.3	58.4	66.1	13.1
Trinidad & Tobago	71.4	79.9	73.2	73.8	74.9	1.5
Venezuela	170.3	157.5	199.8	220.5	165.9	-24.8
Others	956.2	1,018.0	984.0	1,116.4	1,049.8	-6.0
<b>Eastern Europe and Eurasia</b>	<b>2,653.4</b>	<b>2,601.5</b>	<b>2,677.8</b>	<b>2,842.3</b>	<b>2,753.9</b>	<b>-3.1</b>
Belarus	518.6	539.4	539.5	548.1	452.0	-17.5
Bulgaria	155.4	145.1	135.9	159.0	163.2	2.6
Czech Republic	203.1	202.1	218.3	223.9	208.2	-7.0
Hungary	150.5	153.9	170.0	182.1	186.9	2.7
Poland	600.2	579.1	599.4	661.2	665.5	0.7
Romania	142.9	141.8	172.3	178.9	196.3	9.7
Ukraine	206.9	168.7	183.2	181.4	206.6	13.9
Others	675.8	671.4	659.4	707.7	675.2	-4.6
<b>Western Europe</b>	<b>17,124.2</b>	<b>16,948.2</b>	<b>16,775.1</b>	<b>17,750.8</b>	<b>17,964.2</b>	<b>1.2</b>
Belgium	1,028.7	1,104.2	1,140.1	1,194.6	1,197.1	0.2
France	2,042.9	1,991.6	1,974.0	2,002.7	1,919.9	-4.1
Germany	2,571.5	2,630.5	2,598.7	2,643.2	2,648.8	0.2
Greece	503.9	467.7	488.2	530.6	557.5	5.1
Italy	1,586.9	1,438.9	1,338.4	1,523.5	1,553.5	2.0
Netherlands	2,874.9	2,795.4	2,749.7	2,957.0	3,026.6	2.4
Spain	1,511.5	1,452.6	1,521.8	1,627.7	1,659.8	2.0
Sweden	567.8	490.9	557.6	580.6	612.7	5.5
Turkey	836.9	836.0	833.3	1,004.2	1,031.3	2.7
United Kingdom	1,618.7	1,613.0	1,548.0	1,508.6	1,533.2	1.6
Others	1,980.5	2,127.5	2,025.3	2,177.9	2,223.9	2.1

Table 5.10

## World imports of crude oil and petroleum products by country

(1,000 b/d)

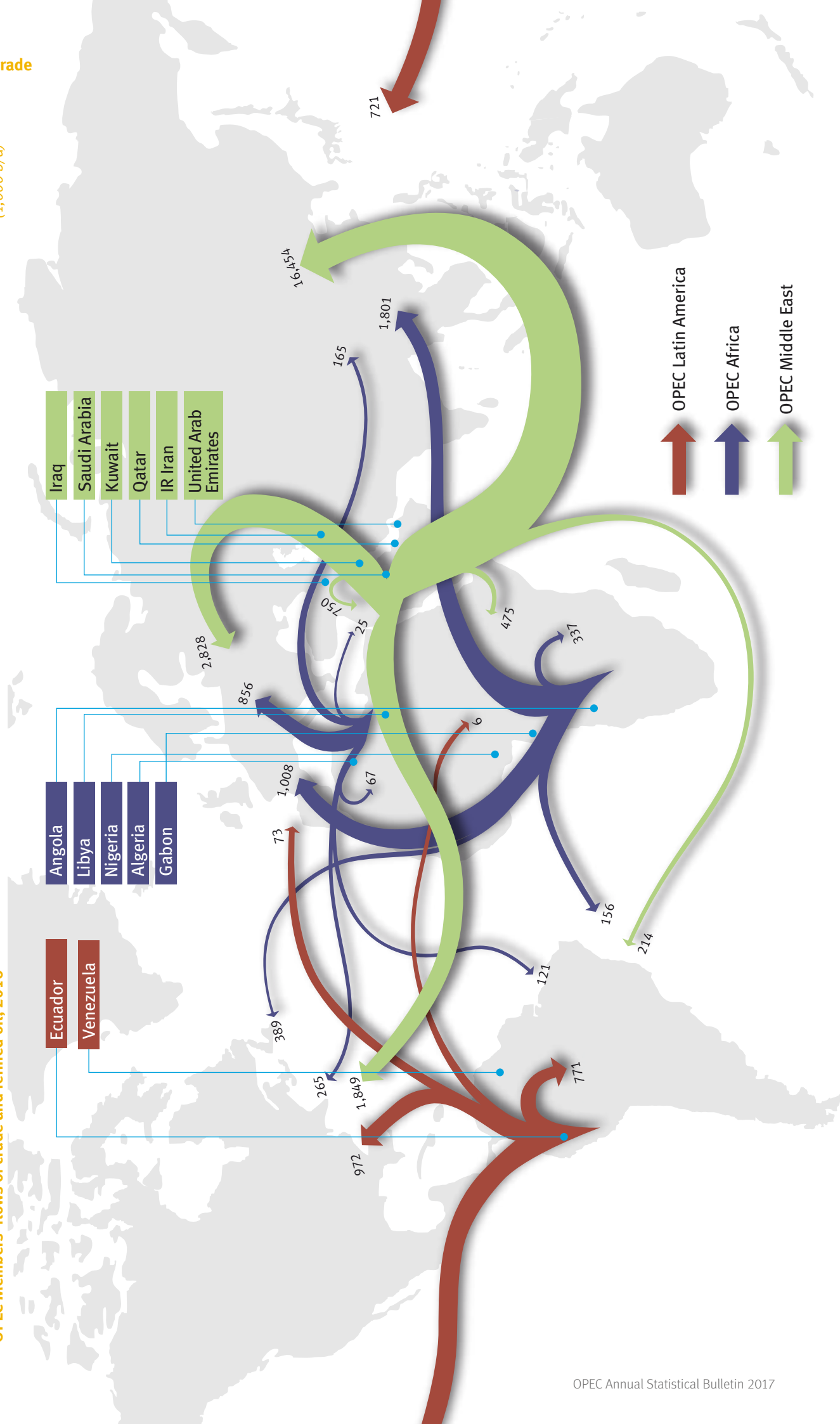
	2012	2013	2014	2015	2016	% change 16/15
<b>Middle East</b>	<b>1,991.7</b>	<b>2,060.2</b>	<b>2,164.5</b>	<b>2,380.1</b>	<b>2,349.7</b>	<b>-1.3</b>
Bahrain	234.0	232.0	225.0	259.4	225.3	-13.1
IR Iran	6.9	15.0	39.9	52.5	61.6	17.4
Iraq	103.2	84.0	99.0	81.1	91.7	13.0
Qatar	0.0	6.0	5.4	32.8	20.6	-37.0
Saudi Arabia	319.9	482.0	465.0	588.0	591.1	0.5
United Arab Emirates	289.8	292.1	349.8	358.0	340.2	-5.0
Others	1,038.1	949.1	980.4	1,008.3	1,019.1	1.1
<b>Africa</b>	<b>2,464.5</b>	<b>2,290.5</b>	<b>2,390.4</b>	<b>2,598.7</b>	<b>2,539.2</b>	<b>-2.3</b>
Algeria	101.1	104.6	61.4	88.9	78.2	-12.0
Angola	92.3	89.2	99.1	134.5	75.8	-43.7
Egypt	341.3	234.9	270.3	458.7	434.5	-5.3
Gabon	7.9	8.2	8.8	9.7	10.5	7.9
Libya	85.9	151.6	98.9	90.2	89.9	-0.4
Morocco	265.8	279.3	268.1	204.0	256.8	25.9
Nigeria	351.6	331.0	438.7	441.0	423.4	-4.0
South Africa	527.3	461.8	515.1	529.2	532.4	0.6
Tunisia	84.1	85.3	92.3	99.9	93.0	-6.9
Others	607.2	544.5	537.7	542.5	544.8	0.4
<b>Asia and Pacific</b>	<b>27,666.4</b>	<b>28,203.5</b>	<b>28,839.0</b>	<b>30,378.6</b>	<b>32,101.3</b>	<b>5.7</b>
Australia	876.8	873.8	870.6	863.8	887.0	2.7
China	6,441.7	6,750.7	7,135.2	7,881.8	8,845.7	12.2
India	4,087.5	4,164.9	4,279.3	4,572.0	5,122.3	12.0
Indonesia	796.7	863.1	937.8	880.4	864.7	-1.8
Japan	4,546.6	4,412.2	4,237.3	4,206.4	4,026.7	-4.3
Malaysia	627.1	718.3	779.9	790.3	885.4	12.0
New Zealand	145.6	149.8	149.1	149.4	162.8	9.0
Philippines	329.5	330.9	363.9	394.3	442.3	12.2
Singapore	2,999.9	3,092.9	3,173.2	3,380.6	3,410.8	0.9
South Korea	3,407.8	3,349.7	3,361.4	3,625.3	3,838.6	5.9
Thailand	973.4	999.2	982.3	1,022.9	1,019.8	-0.3
Others	2,433.8	2,497.9	2,568.9	2,611.3	2,595.1	-0.6
<b>Total world</b>	<b>66,768.0</b>	<b>66,208.8</b>	<b>66,385.2</b>	<b>69,810.1</b>	<b>72,278.8</b>	<b>3.5</b>
<i>of which</i>						
OPEC	1,646.7	1,854.5	2,023.1	2,248.9	2,071.5	-7.9
OECD	39,765.5	38,491.2	37,555.5	39,140.7	39,862.0	1.8
FSU	1,290.2	1,178.0	1,202.3	1,265.9	1,179.6	-6.8

## Notes:

Data may include lease condensates, re-exports of petroleum products and volumes of oil in transit.

(1,000 b/d)

Graph 5.9  
OPEC Members' flows of crude and refined oil, 2016





# SECTION 6

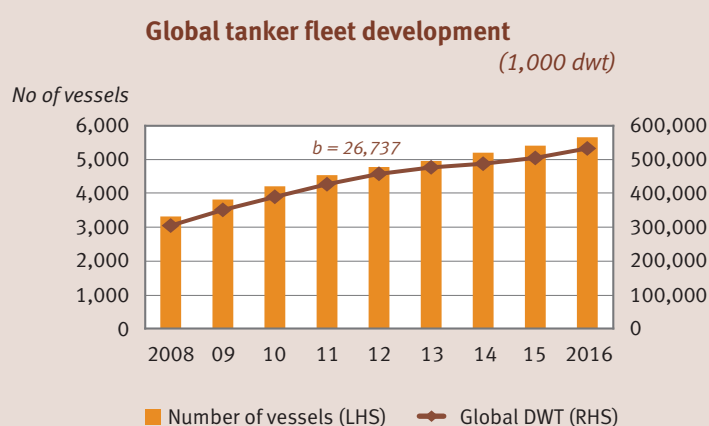
## Oil transportation





## Recent developments in tanker fleet and spot freight rates

In recent years, the trend towards rising oil production levels in exporting countries, together with increasing demand and refining capacities in oil importing countries, has resulted in a global increase of vessels for oil transportation in order to meet growing demand. From a purely economic point of view, demand for tankers is mainly determined by the dynamics of the fundamentals of supply and demand across various geographic regions. Since 2008 the number of all combined tankers has increased continuously as highlighted in the graph below. In 2016 the total number of vessels amounted to 5,607 compared to 5,359 vessels in 2015. In the period from 2008 to 2016, the total number of tankers increased by 71 per cent. In terms of deadweight tonnages (dwt), in 2016 global combined vessels could theoretically and safely carry and transport about 528m t of oil per day compared to 500m t in 2015. In the period from 2008 to 2016, total number of dwt increased by 75 per cent. A simple linear regression model on the continuously increasing carriage capacity of tankers over time yields a slope coefficient of  $b = 26,737$  1,000 dwt per year.

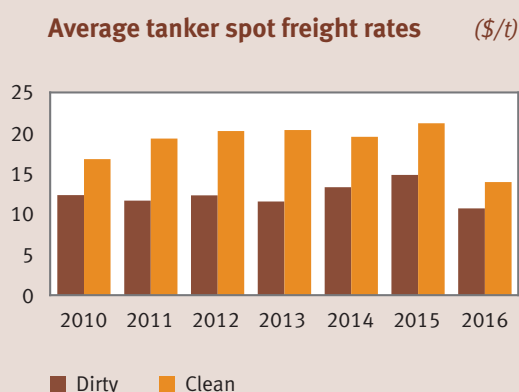


**Coefficient of simple linear regression model<sup>1</sup>**  
2008–2016      26,737\*

1. Slope coefficient of simple linear regression model with global dwt as a dependent variable and the year as an independent variable.

\* Statistically significant at  $\alpha = 0.05$  level.

In general, the oil tanker market differentiates between two categories. First, dirty tankers mainly carry crude oil and residual fuel oil, and are typically very big vessels with relatively low dollar-per-ton transportation costs. Second, clean tankers are meant to transport refined products and are normally smaller vessels — and, hence, have higher dollar-per-ton transportation costs. On a global scale, and considering the major transportation routes, the average transportation costs in 2016 for clean tankers was about 30 per cent more than for dirty tankers as implied by the graph below.



Descriptive statistics Difference between dirty and clean tankers spot freight rates (\$/t)				
	Average	Std Dev	Min	Max
Difference	6.4	2.0	3.3	8.8

The table above presents some descriptive statistics on the differences between dirty and clean tanker spot freight rates for the period 2010–2016. On average, clean tanker spot freight rates were \$6.4/t more expensive than dirty tanker rates, with a standard deviation of \$2/t, while the maximum difference amounted to almost as much as \$9/t.

Table 6.1  
Tanker fleet in OPEC Members

(1,000 dwt)

	2012		2013		2014		2015		2016	
	number	dwt	number	dwt	number	dwt	number	dwt	number	dwt
Algeria	1	160	1	160	1	160	1	160	1	160
Angola	31	2,363	31	2,363	27	2,498	27	2,498	26	2,085
Ecuador	14	957	18	1,231	20	1,457	9	638	9	638
Gabon	1	0.4	1.0	0.4	1.0	0.4	1.0	0.4	1.0	0.4
IR Iran	47	10,994	47	10,994	46	10,982	46	10,982	47	10,982
Iraq	4	53	4	50	4	53	4	53	4	53
Kuwait	21	3,404	19	3,547	26	4,825	26	4,825	25	4,703
Libya	5	548	5	548	5	548	5	548	5	548
Nigeria	2	409	2	409	2	409	2	409	–	–
Qatar	6	528	6	528	5	397	5	397	5	397
Saudi Arabia	20	5,051	23	6,004	23	6,004	23	6,004	23	6,004
United Arab Emirates	13	660	13	660	19	1,139	19	1,139	19	1,139
Venezuela	19	1,452	22	2,066	26	3,346	26	3,346	26	3,346
<b>OPEC</b>	<b>184</b>	<b>26,579</b>	<b>192</b>	<b>28,560</b>	<b>205</b>	<b>31,819</b>	<b>194</b>	<b>31,000</b>	<b>191</b>	<b>30,057</b>
Total world	4,734	453,168	4,912	472,169	5,153	482,975	5,359	499,922	5,607	527,651
<i>OPEC percentage</i>		5.9		6.0		6.6		6.2		5.7

## Notes:

Figures as at year-end.

Table 6.2  
World tanker fleet by year of build and categories

(1,000 dwt)

Tanker size		up to 2001		2002–06		2007–11		2012–16		Total	
		no	dwt	no	dwt	no	dwt	no	dwt	no	dwt
GP	16.5–24.9	170	2,815	143	2,431	340	5,417	92	1,721	744	12,384
MR	25.0–44.9	293	11,193	368	14,500	359	14,401	296	12,782	1,315	52,876
LR1	45.0–79.9	155	7,918	367	21,060	589	33,282	304	16,297	1,414	78,557
LR2	80.0–159.9	278	33,243	375	44,879	471	57,573	277	35,702	1,401	171,397
VLCC	160.0–319.9	134	38,966	176	49,398	266	75,946	158	48,127	734	212,437
<b>Total world</b>		<b>1,029</b>	<b>94,136</b>	<b>1,428</b>	<b>132,268</b>	<b>2,024</b>	<b>186,618</b>	<b>1,126</b>	<b>114,630</b>	<b>5,607</b>	<b>527,651</b>

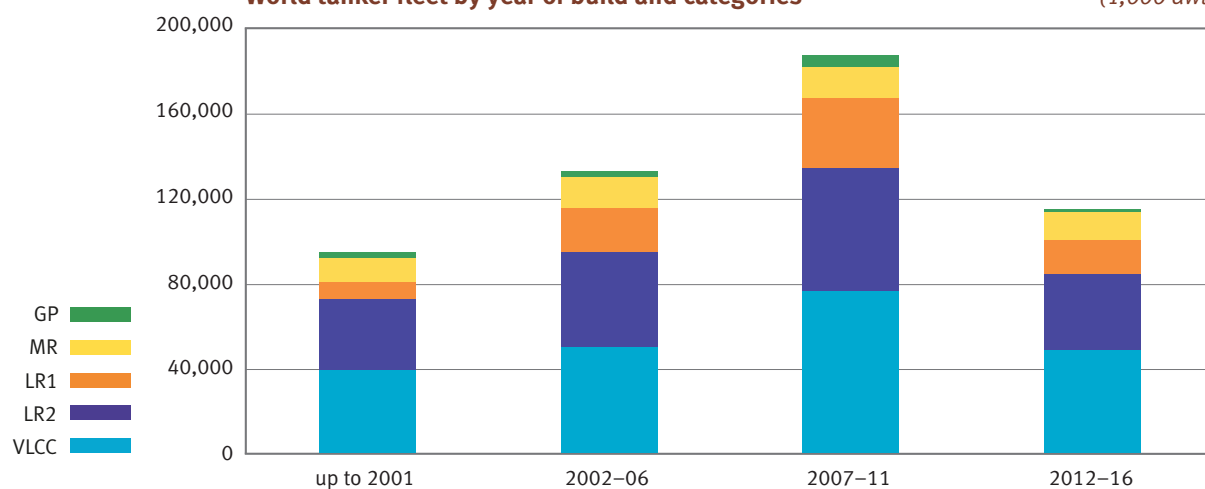
## Notes:

Figures as at year-end. Data is adjusted to take in account different categories of vessels. Data includes clean, dirty and chemical tankers.

GP = general purpose carrier; MR = medium range carrier; LR1 = large range 1 carrier; LR2 = large range 2 carrier; VLCC = very large crude carrier.

Graph 6.1  
World tanker fleet by year of build and categories

(1,000 dwt)



Graph 6.2  
World tanker fleet by year of build and categories

(number of vessels)

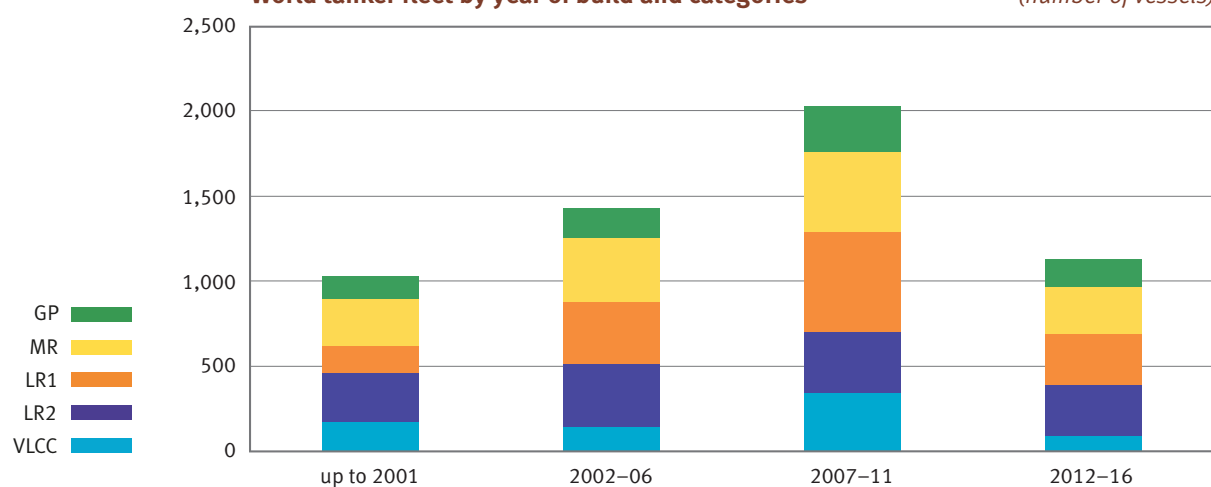


Table 6.3

**LPG carrier fleet in OPEC Members***(1,000 cu m)*

	2012		2013		2014		2015		2016	
	no	capacity	no	capacity	no	capacity	no	capacity	no	capacity
Algeria	8	324	8	324	8	324	8	324	9	386
Angola	5	51	5	51	6	48	6	54	5	39
Ecuador	5	110	5	145	5	145	2	109	2	109
Gabon	–	–	–	–	–	–	–	–	–	–
IR Iran	1	12	1	12	1	12	1	12	1	12
Iraq	–	–	–	–	–	–	–	–	–	–
Kuwait	4	321	4	321	4	215	4	215	4	316
Libya	2	8	2	8	2	8	2	8	2	8
Nigeria	2	157	2	157	–	–	–	–	–	–
Qatar	4	328	4	328	4	328	4	328	4	328
Saudi Arabia	–	–	–	–	–	–	–	–	–	–
United Arab Emirates	1	3	1	3	1	9	1	9	1	9
Venezuela	2	24	2	24	–	–	–	–	–	–
<b>OPEC</b>	<b>34</b>	<b>1,338</b>	<b>34</b>	<b>1,373</b>	<b>31</b>	<b>1,089</b>	<b>28</b>	<b>1,059</b>	<b>28</b>	<b>1,207</b>
Total world	1,203	19,625	1,216	19,945	1,248	21,316	1,273	22,373	1,338	25,899
<i>OPEC percentage</i>		<i>6.8</i>		<i>6.9</i>		<i>5.1</i>		<i>4.7</i>		<i>4.7</i>

**Notes:**

Figures as at year-end.

Table 6.4

**World LPG carrier fleet by size***(1,000 cu m)*

	2012		2013		2014		2015		2016	
	no	capacity	no	capacity	no	capacity	no	capacity	no	capacity
up to 19,999	927	3,854	936	3,956	950	4,096	959	4,163	976	4,330
20,000–39,999	116	3,338	118	3,394	123	3,552	131	3,797	140	4,040
40,000–59,999	20	1,184	20	1,184	20	1,184	20	1,184	23	1,365
60,000–99,999	140	11,249	142	11,411	155	12,484	163	13,229	199	16,164
100,000 and over	–	–	–	–	–	–	–	–	–	–
<b>Total world</b>	<b>1,203</b>	<b>19,625</b>	<b>1,216</b>	<b>19,945</b>	<b>1,248</b>	<b>21,316</b>	<b>1,273</b>	<b>22,373</b>	<b>1,338</b>	<b>25,899</b>

**Notes:**

Figures as at year-end.

Table 6.5

**World combined carrier fleet by size***(1,000 dwt)*

	2012		2013		2014		2015		2016	
	no	dwt	no	dwt	no	dwt	no	dwt	no	dwt
10,000–39,999	2	42	2	42	1	28	1	28	1	28
40,000–49,999	3	135	2	87	2	87	2	87	2	87
50,000–59,999	–	–	–	–	–	–	–	–	–	–
60,000–69,999	1	66	–	–	–	–	–	–	–	–
70,000–79,999	3	225	–	–	6	435	6	435	6	435
80,000–99,999	4	333	–	–	–	–	–	–	2	161
100,000–119,999	10	1,098	10	1,098	10	1,098	10	1,098	8	879
120,000–129,999	2	241	2	241	2	241	2	241	2	241
130,000–319,999	5	1,599	5	1,599	5	1,599	–	–	–	–
<b>Total world</b>	<b>30</b>	<b>3,739</b>	<b>21</b>	<b>3,066</b>	<b>26</b>	<b>3,490</b>	<b>21</b>	<b>1,890</b>	<b>21</b>	<b>1,831</b>

**Notes:**

Figures as at year-end.

Table 6.6

**Average spot freight rates by vessel category**

(*% of Worldscale*)

	Tanker size (1,000 dwt)	2012	2013	2014	2015	2016
GP	16.5–24.9	152	146	145	155	105
MR	25.0–44.9	157	146	144	155	135
LR1	45.0–79.9	105	94	110	118	98
LR2	80.0–159.9	65	54	69	75	67
VLCC	160.0–319.9	49	42	52	66	53

**Notes:**

Average spot freight rates are the average of all spot freight rates by tanker size reported each month in the spot market. GP = general purpose carrier; MR = medium range carrier; LR1 = large range 1 carrier; LR2 = large range 2 carrier; VLCC = very large crude carrier.

Graph 6.3

**Average spot freight rates by vessel category**

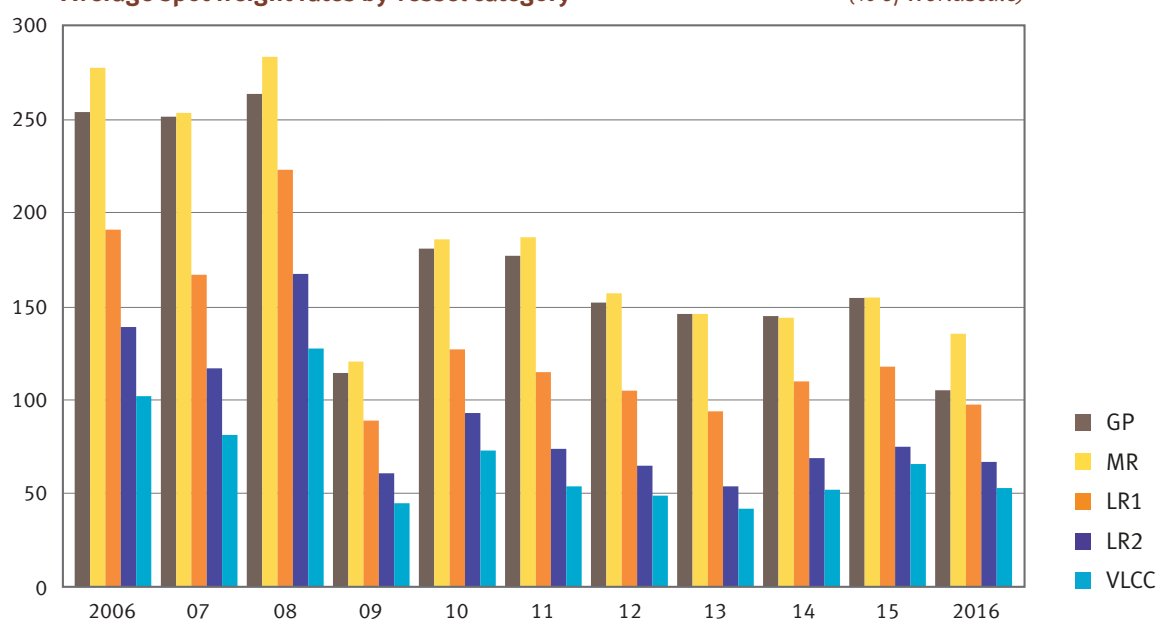
(*% of Worldscale*)




Table 6.7  
Dirty tanker spot freight rates

(% of Worldscale and \$/t)

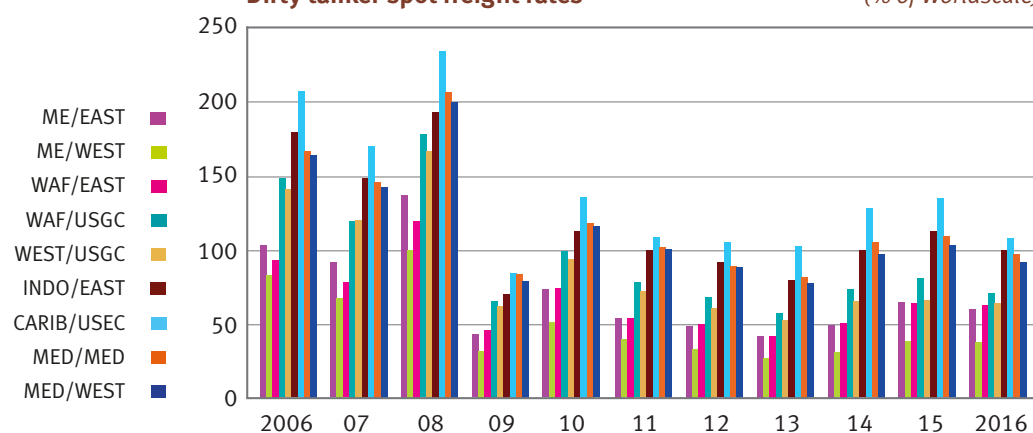
	2012		2013		2014		2015		2016	
	%	\$/t	%	\$/t	%	\$/t	%	\$/t	%	\$/t
ME/EAST	48	7.5	41	7.1	49	7.9	64	10.3	60	10.8
ME/WEST	33	14.2	26	12.4	30	11.8	38	13.4	37	7.6
WAF/EAST	49	19.3	41	17.7	50	20.1	63	25.0	62	17.7
WAF/USGC	67	16.7	57	15.4	73	18.6	81	20.3	70	12.6
WEST/USGC	60	12.6	52	11.8	65	14.2	66	14.3	64	11.6
INDO/EAST	91	13.7	79	13.0	99	15.2	112	16.8	99	11.4
CAR/USEC	105	10.2	102	10.8	127	12.8	134	13.3	107	8.6
MED/MED	88	5.6	81	5.4	104	6.8	108	7.1	97	6.1
MED/WEST	88	10.9	77	10.2	97	12.3	102	12.8	91	9.8

**Notes:**

ME = Middle East; EAST = Far East; WEST = North-West Europe; WAF = West Africa; USGC = US Gulf Coast; INDO = Indonesia; CAR = Caribbean; USEC = US East Coast; MED = Mediterranean.

Graph 6.4  
Dirty tanker spot freight rates

(% of Worldscale)



Graph 6.5  
Dirty tanker spot freight costs

(\$/t)

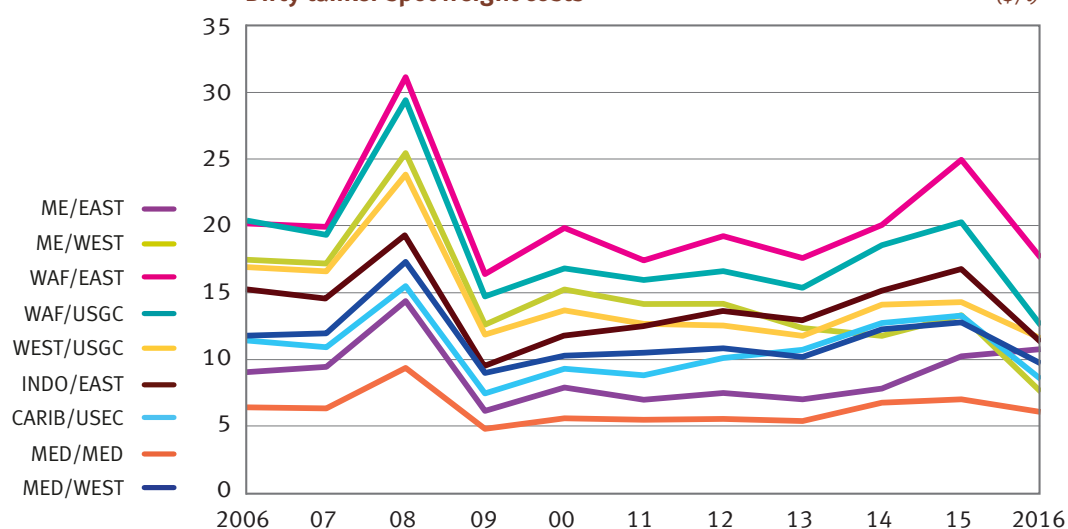


Table 6.8

**Clean tanker spot freight rates**

(*% of Worldscale and \$/t*)

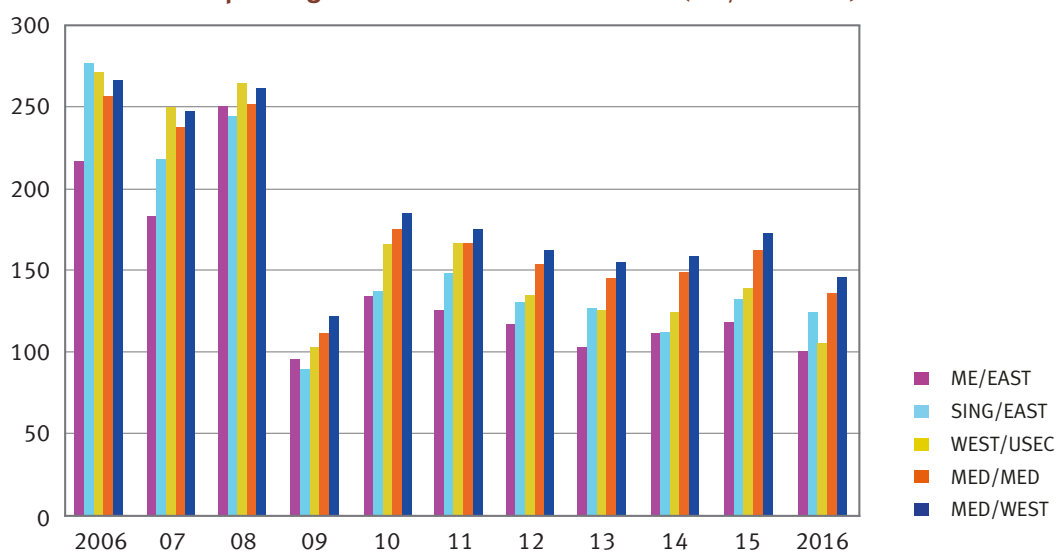
	2012		2013		2014		2015		2016	
	%	\$/t	%	\$/t	%	\$/t	%	\$/t	%	\$/t
ME/EAST	117	31.6	103	30.4	111	30.8	118	31.9	100	19.5
SING/EAST	130	17.3	126	18.3	112	15.3	132	17.5	124	12.2
WEST/USEC	134	21.2	125	21.6	124	20.4	139	22.7	105	14.5
MED/MED	153	9.5	145	9.3	149	9.4	162	10.4	136	7.9
MED/WEST	162	21.6	155	22.2	159	21.8	172	23.5	146	15.5

**Notes:**

ME = Middle East; EAST = Far East; SING = Singapore; WEST = North-West Europe; USEC = US East Coast, MED = Mediterranean.

Graph 6.6

**Clean tanker spot freight rates**

(*% of Worldscale*)


Graph 6.7

**Clean tanker spot freight costs**

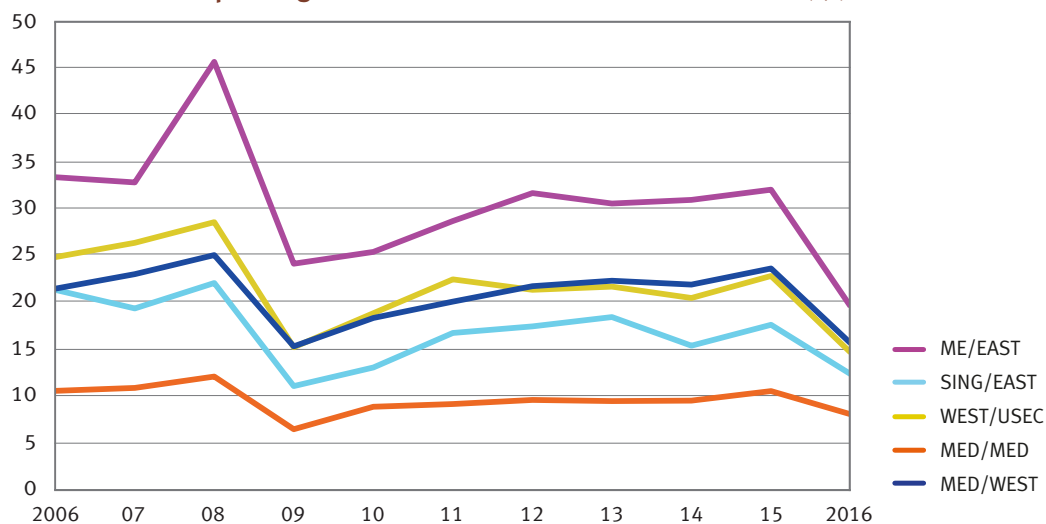
(*\$/t*)


Table 6.9  
Main crude oil pipelines in OPEC Members, 2016

Connection from/to	Owner or operator	Length (miles)	Diameter (inches)
<b>Algeria</b>			
Haoud El Hamra/Arzew (2)	Sonatrach/TRC	498, 511	28, 34
Haoud El Hamra/Bejaia	Sonatrach/TRC	415	24
Haoud El Hamra/Skikda	Sonatrach/TRC	400	34
In Amenas/La Skhirra (Tunisia)	Sonatrach/TRC	165	24
<b>Angola</b>			
Block 0: Banzala platform "A"/GS-Mike platform	Chevron	14	12
Block 0: East Kokongo/Malongo terminal	Chevron	65	24
Block 0: GS-M platform/GS-N platform	Chevron	11	20
Block 0: GS-N platform/Malongo terminal	Chevron	35	30
Block 0: PPP/Mal tank farm	Chevron	45	18
Block 0: South Nemba/East Kokongo	Chevron	22	18
Block 0: South Sanha/East Kokongo	Chevron	16	12
Block 0: North N'Dola/East Kokongo	Chevron	13	12
Block 14: Tombua Landana CPT/East Kokongo	Chevron	27	18
Block 14: Lianzi DC-A/BBLT	Chevron	43	13
Block 15/06: PLET M2/PLET M1	Eni	15	8
Block 15: FLET Production Line/FLET Production Line (4)	Esso	4 x 13	4 x 12
Block 15: Kizomba C1/ Kizomba A SHR	Esso	24	10
Block 15: Kizomba MV1 (North)/Kizomba B SHR	Esso	13	10
Block 17: FLET P10/SSU Zinia	Total	34	10
Block 17: P20/FPSO Girassol	Total	17	8
Block 17: P50/FPSO Girassol	Total	11	8
Block 17: P60/FPSO Girassol	Total	11	8
Block 17: P70/FPSO Girassol	Total	26	8
Block 17: P80/FPSO Girassol	Total	40	8
Block 18: Greater Plutonio Project (2)	BP	20, 22	2 x 12
Block 2/85: Bagre B/Bagre F	Snl P & P	13	16
Block 2: Essungo/Quinfuquena terminal	Snl P & P	22	18
Block 2: Lombo East/Essungo	Snl P & P	76	16
Block 3: IPSF1/PLAP2	Snl P & P	13	10
Block 3: Lombo East/PALP2	Snl P & P	14	16
Block 3: PACF1/PALP1	Snl P & P	15	12
Block 3: PAMF1/PALP 2	Snl P & P	23	16
Block 31: PSVM Project (3)	BP	19, 33, 35	11, 2 x 13
<b>Ecuador</b>			
Lago Agrio/Esmeraldas	Oleoducto Trans-ecuatoriano SOTE (State)	311	26/20/26
Lago Agrio/Esmeraldas	Oleoducto de crudos pesados OCP (Private)	303	24, 2 x 32, 34, 36
<b>Gabon</b>			
Konzi/Cap Lopez	—	42	10
Mandaros/Tchengue	—	58	16/20

Table 6.9  
Main crude oil pipelines in OPEC Members, 2016

Connection from/to	Owner or operator	Length (miles)	Diameter (inches)
<b>IR Iran</b>			
Ahwaz/Ray	NIOC	934	30/26
Ahwaz/Abadan (2)	NIOC	121, 137	12/20, 24
Cheshmeh Khosh/Ahwaz	NIOC	154	18
Darkhoin/Abadan	NIOC	60	16
Esfahan/Ray	NIOC	225	24
Gachsaran/Shiraz	NIOC	228	10
Genaveh/Kharg	NIOC	47	30/42/52
Goreh/Genaveh	NIOC	33	26/30/42
Marun/Esfahan	NIOC	440	30/32
Naftshahr/Kermanshah	NIOC	231	8
Neka/Ray	NIOC	320	30/32
Omidieh/Abadan	NIOC	103	12
Ray/Tabriz	NIOC	607	16
Tang-e-Fani/Kermanshah	NIOC	241	10–16
<b>Iraq</b>			
(IT1) Station/Al-Fat'ha (Tigris river crossing)	North Oil Company	46	40
(IT1) Station/North Refinery Company	Oil Pipeline Company	52	26
(IT1A) Station/Iraqi-Turkish border	North Oil Company	139	46
(K3) Station/Iraqi-Syrian border (2)	North Oil Company	2 x 98	32, 30
Ahdeb/PS2	SOC	131	24
Ahdeb/Wassit P P (2)	OPC	42, 45	16, 10
Al-Fat'ha (Tigris River crossing)/(IT1A) Station	North Oil Company	29	40
Badra/PS2 (Section 1)	MOC	103	24
Badra/PS2 (Section 2)	SOC	59	28
East Baghdad/Daura refinery	OPC	44	16
Burzgan Terminal/FAO	Petrochina & CNOOC	181	28
Neft-Khana/Daura refinery	OPC	81	12
PS1/Basrah terminal	SOC	130	48
PS2/Tuba (warehouse)	SOC	124	36
West Al-Fat'ha/(IT1A) Station (3)	North Oil Company	3 x 27	20, 28, 34
West Al-Fat'ha/(K3) Station	North Oil Company	84	12
ZB1/Al-Umaya terminal	SOC	125	42
ZB1/Basrah terminal	SOC	100	42
<b>Kuwait</b>			
Kadma/Doha P S	KOC	14	20
KADMA/MF-CR181R	KOC	48	30
MF-CPHMAA/CALM 21	KOC	14	56
MF-CR125L/MF-CR125R	KOC	34	16
MF-GC27L/R/MF-TWK	KOC	24	24
MF-GC28L/R/MF-TWK	KOC	28	24

Table 6.9  
Main crude oil pipelines in OPEC Members, 2016

Connection from/to	Owner or operator	Length (miles)	Diameter (inches)
<b>Kuwait (cont'd)</b>			
MF-NPP MS/CALM 20	KOC	14	56
MF-PointA/MF-CR119R	KOC	73	48
MF-Ratqa1/SC-130	KOC	22	36
MF-T18/MF-TWK	KOC	22	20
MF-TB1/2/MF-CR088R	KOC	16	36
Point-A/KADMA	KOC	24	30
Wafra/MF/TB1	KGOC/KOC	24	16
<b>Libya</b>			
El-Sharara/Az-Zawiyah	Akakus	451	30
El-Sharara/Mellitah	Mellitah Oil & Gas	451	30
Sarir/Tobruk	Arabian Oil	318	34
Hamada/Az-Zawiyah	Arabian Oil	240	18
Amal/Ras Lanuf (2)	Harouge	2 x 169	36/30
Zaggut/Es-Sider	Waha Oil	166	24
Intesar/Zuetina	Zuetina	136	40
Messla/Amal	Arabian Oil	128	42
Samah/Dahra	Waha Oil	114	32
Nasser/Al-Brayqah	Sirte	107	36
Gialo/Waha	Waha Oil	94	30
Ora-Beda gathering/Aseida gathering	Harouge	84	24
Bu-Attifel/Intesar	Mellitah Oil & Gas	82	30
Zella/Hofra	Zuetina	70	20
Magid/Nafoora	Arabian Oil	65	14
Sabah/Zella	Zuetina	56	16
Raguba/'Nasser – Al-Brayqah' Line	Sirte	55	20
Aseida gathering/Ras Lanuf	Harouge	55	30
Dor Marada/Ora	Harouge	51	10
Rimal/Bu-Attifel	Mellitah Oil & Gas	47	12
El-Feel/El-Sharara	Mellitah Oil & Gas	47	24
Bahi gathering/Es-Sider (2)	Waha Oil	2 x 44	30
Dahra/Bahi gathering	Waha Oil	43	30
Faregh/Gialo	Waha Oil	40	12
Waha/Samah	Waha Oil	40	24
Hofra/Aseida gathering	Harouge	35	24
Nafoora/Amal	Arabian Oil	32	32
Waha/Zaggut	Waha Oil	27	24
Zaggut/Samah	Waha Oil	22	24

Table 6.9  
Main crude oil pipelines in OPEC Members, 2016

Connection from/to	Owner or operator	Length (miles)	Diameter (inches)
<b>Nigeria</b>			
Escravos/Warri/Kaduna	NNPC/PPMC	421	24/16
Obriafu/Oben node	NNPC/PPMC	130	48
Drill Center 2/Drill Center North	MPNU	100	11
Ogoda/Brass	NAOC	62	24
Okoro 2/IMA terminal	AMNI	60	12
Tebidaba/Brass	NAOC	57	24
Bonny/Port Harcourt refinery	NNPC/PPMC	34	24
Brass Creek/Forcados	SPDC	34	24
Oso/Kit/tanker berth 2 & Oso SPM	MPN/MPNU	31, 37, 45	18, 36, 42
Rapele manifold/Forcados terminal	SPDC	31	28
Edop/Kit	MPN	30	24
Alakiri/Bonny	SPDC	21	24
Buguma Creek/Alakiri	SPDC	20	29
Idoho/Kit (2)	MPNU	19, 48	2 x 24
Forcados/CLP	SPDC	19	48
Ughelli PS/WRM LL	SPDC	19	20
Bonny terminal/offshore SBM (1 & 2)	SPDC	2 x 19	2 x 48
Bonny/CLP	SPDC	18	48
Forcados terminal/offshore SBM	SPDC	18	48
Brass manifold/Brass offshore terminal	NAOC	16	36
<b>Qatar</b>			
Mile 32/storage tank Mesaieed (3)	QP	3 x 60	16, 20, 24
Bul Hanine/Halule Island	QP	43	20
DP (1 & 2)/Halule Island (3)	Total	3 x 40	2 x 12, 20
GIP/PS3	QPD	41	10
Idd El Shargi/Halule Island (2)	OXY	20, 24	20, 12
Um Bab/Mile 32 (4)	QP	4 x 25	2 x 14, 16, 24
<b>Saudi Arabia</b>			
Abqaiq/Yanbu	Saudi Aramco	748	56
Shaybah/Abqaiq	Saudi Aramco	397	46
Hawtah/Hawtah stabilizer	Saudi Aramco	206	24
Safaniyah/Juaymah	Saudi Aramco	123	46/48
Ghawar/Abqaiq (3)	Saudi Aramco	2 x 110, 134	18/20/24/30/31, 46/48, 36/40/42
AY-11L KP 65.628/Rabigh	Saudi Aramco	90	36
Khurais/Riyadh	Saudi Aramco	88	26
Safiniyah/Khursaniyah (4)	Saudi Aramco	4 x 66	22, 30, 40/42, 40/42/48
Khursaniyah/Ras Tanura (4)	Saudi Aramco	53, 63, 65, 67	40/42/48, 22, 40/42, 30
Abqaiq/Qatif junction (5)	Saudi Aramco	2 x 44, 3 x 34	30/32, 46/48, 30, 40/42
Abqaiq Plants/Dhahrab (3)	Saudi Aramco	39, 2 x 38	14, 12/14
Berri/Ras Tanura	Saudi Aramco	37	40/42

Table 6.9  
Main crude oil pipelines in OPEC Members, 2016

Connection from/to	Owner or operator	Length (miles)	Diameter (inches)
<b>Saudi Arabia (cont'd)</b>			
KM 50/Qatif junction	Saudi Aramco	31	46/48
Neutral Zone: Wafra field/Mina Saud (3)	SAC	3 x 31	10, 16, 20
Aindar/Abqaiq plants (3)	Saudi Aramco	3 x 28 20/22, 24/26/28, 24/26/30/32	
Qatif junction/Ju'aymah terminal (3)	Saudi Aramco	3 x 24	48, 2 x 46/48
<b>United Arab Emirates</b>			
Habshan/Jebel Dhanna (3)	ADCO	22, 27, 49	32, 2 x 36
Habshan/Fujeirah (2)	ADCO	91.6, 145.6	2 x 48
Zakum/Das Island	ADMA-OPCO	57	30
Umm Shaif/Das Island	ADMA-OPCO	22	36
Upper Zakum/Zirku	ZADCO	36.74*2	42*2
<b>Venezuela</b>			
Bachaquero/PT Miranda (2)	PDVSA	2 x 66	30/31, 30/34
EPM-1/PT Oficina	PDVSA	91	36
La Victoria/Las Monas	PDVSA	27	16
Mata Larga/PT Silvestre	PDVSA	157	20
PT Miranda/Cardon	PDVSA	141	30
PT Oficina/TAEG	PDVSA	95	30
PT Oficina/Jose	PDVSA	97	42
PT Silvestre/El Palito	PDVSA	213	20
CATCT/ERB-II (3)	PDVSA	3 x 62.77	16/26/30
Pta de Palma/PT Miranda	PDVSA	42	24
Ule/Amuya	PDVSA	143	26
ZPS/JPS	PDVSA	123	36
CIJAA/PT Oficina	PDVSA	93	20
COPEM/PT Oficina	PDVSA	87.7	30
VELADERO/EPT-1	PDVSA	41.01	30
PTA (T-52) Sb/PT Oficina	PDVSA	36.1	16
CATCJ/QE-1 (Azagua)	PDVSA	37.29	20



Table 6.10  
Main petroleum product pipelines in OPEC Members, 2016

Connection from/to	Owner or operator	Length (miles)	Diameter (inches)
<b>Algeria</b>			
Arzew/Oran	Naftal	19	8
Arzew/Sidi Bel Abbès (2)	Naftal	45, 45 (LPG)	12, 10
El Khroub/El Eulma	Naftal	64	16
Sidi Abdeli/Remchi	Naftal	14	8
Sidi Arcine/Blida (2)	Naftal	30, 24 (LPG)	2 x 10
Sidi Bel Abbès/Sidi Abdeli	Naftal	32	10
Sidi Bel Abbès/Tlemcen	Naftal	44 (LPG)	8
Skikda/Berrahal (2) <sup>1</sup>	Naftal	53, 53 (LPG)	12, 8
Skikda/El Khroub (3)	Naftal	65 <sup>1</sup> , 56, 57 (LPG)	16 <sup>1</sup> , 12, 10
<b>Angola</b>			
Lobito-Lusaka (Zambia) <sup>1</sup>	Sonangol	868	na
<b>Ecuador</b>			
Beaterio (Quito)/Ambato	EP Petroecuador	69	6
Esmeraldas/Santo Domingo	EP Petroecuador	101	16
Libertad/Barbasquillo	EP Petroecuador	104	6
Libertad/Pascuales	EP Petroecuador	78	10
Monteverde/Chorrillos	EP Petroecuador	77	10
Quito/Ambato	EP Petroecuador	69	6
Santo Domingo/Beaterio	EP Petroecuador	55	12
Santo Domingo/Pascuales	EP Petroecuador	170	10
Shushufindi/Beaterio	EP Petroecuador	187	6/4
<b>Gabon</b>			
—	—	—	—
<b>IR Iran</b>			
Abadan/Ahwaz	NIOC	94	12, 16
Ahwaz/Rey (2)	NIOC	510, 469	10/14/10, 16/20/16
Arak/Hamadan	NIOC	107	12
Arak/Rey	NIOC	160	10, 16
Esfahan/Rey (2)	NIOC	2 x 231	18, 24
Gazvin/Rasht	NIOC	109	6
Imam – Taghy/Torbat Haidar	NIOC	58	8
Mahshahr/Abadan	NIOC	63	16
Rey/Karadj	NIOC	36	8
Rey/Rasht	NIOC	195	14, 16, 18
Rey/Sary	NIOC	178	12, 16
Rey/Tabriz	NIOC	476	14
Rey/Mashhad	NIOC	523	20, 22
Shahrood/Gorgan	NIOC	103	8, 10
Shahrood/Mashhad	NIOC	275	8
Tabriz/Orumieh	NIOC	174	8, 10

Table 6.10  
Main petroleum product pipelines in OPEC Members, 2016

Connection from/to	Owner or operator	Length (miles)	Diameter (inches)
<b>Iraq</b>			
Baiji/Hamam Alil	OPC	167	16
Baiji/Kirkuk	OPC	86	12
Baiji/Mushahdah (2)	OPC	2 x 168	22, 8
Baiji/T1	OPC	242	16
Basrah refinery/Hartha & Najibia electric stations	OPC	30	8/12
Daura refinery/Baghdad int airport	OPC	28	8
Daura/Rusafa	OPC	51	10
Hamam Alil/Felfel	OPC	65	32
Huzairan depot/Cement Al Tamem	OPC	42	6
Karkh/Habania	OPC	156	(16 x 31)(12 x 125)
Khour Al- Zubair/Shuaiba (2)	OPC	2 x 45	10, 8/10
Mushahdah/Karkh	OPC	111	12
Mushahdah/Rusafa	OPC	52	12
Nasiriyah/Daura refinery	OPC	379	10
Nasiriyah/Kut	OPC	186	8
North Gas/Sallah Al-Dean refinery	OPC	86	8
Rusafa/Diala	OPC	25	8
Shuaiba/Abu – Phlooce	OPC	38	10/24
Shuaiba/Khour Al-Zubair	OPC	45	16/24
Shuaiba/Muftia	OPC	21	10
Shuaiba/Nasiriyah (2)	OPC	161, 164	14, 10
<b>Kuwait</b>			
Mina al Ahmadi refinery/Al-Zour/Doha	KNPC	52	2 x 18, 2 x 20
Mina al Ahmadi/Kafco	KNPC	25	12
Mina al Ahmadi refinery/al Ahmadi (2)	KNPC	12	8, 2 x 6
Mina al Ahmadi refinery/Subhan (2)	KNPC	2 x 12	12, 8
<b>Libya</b>			
Azzawya/Elwettia depot	Elbrega Co	56	16
Azzawya/Eljmail depot	Elbrega Co	40	16
Azzawya/Airport road depot (2)	Elbrega Co	2 x 34	16, 10
Azzawya/Janzour depot	Elbrega Co	21	8
<b>Nigeria</b>			
Atlas Cove/Moisimi	PPMC	30	16
Auchi/Benin	PPMC	66	12
Auchi/Suleja	PPMC	155	12
Benin/Ore	PPMC	71	14
Enugu/Auchi	PPMC	105	12
Ibadan/Ilorin	PPMC	106	6
Moisimi/Ibadan	PPMC	49	12
Ore/Moisimi	PPMC	94	12

Table 6.10  
Main petroleum product pipelines in OPEC Members, 2016

Connection from/to	Owner or operator	Length (miles)	Diameter (inches)
<b>Nigeria (cont'd)</b>			
Suleja/Kaduna	PPMC	93	12
Suleja/Minna	PPMC	50	8
Warri/Benin	PPMC	56	16
<b>Qatar</b>			
QP refinery, Mesaieed/Q-Jet, Doha	QP Refinery	33	16
QP refinery, Mesaieed/WOQOD, Doha (2)	QP Refinery	19, 26	6, 18
<b>Saudi Arabia</b>			
Dharan/Riyadh	Saudi Aramco	246	20
Riyadh/Qasim	Saudi Aramco	225	16
Yanbu/Madina	Saudi Aramco	93	14
Ras Tanura/Dhahran (3)	Saudi Aramco	66, 2 x 23	20, 2 x 12
Abqaiq/Alhasa	Saudi Aramco	40	8
<b>United Arab Emirates</b>			
Ruwais/Mussafah (3)	Takreer	3 x 204.6	16, 2 x 28
HEJP-ENOC/Dubai international airport	HEJP-ENOC	33.7	20 & 16
EIL Jebel Ali terminal/JIFF at DIA	EPPCO Aviation	36.4	10
<b>Venezuela</b>			
San Tomé/Puerto Ordaz	PDVSA	124	12
San Lorenzo/El Vigía	PDVSA	104	12
PT La Cruz/San Tomé	PDVSA	99	16
San Tomé/Maturín	PDVSA	99	8
Refinería El Palito/Planta Barquisimeto	PDVSA	95	12
Bajo Grande/San Lorenzo	PDVSA	70	12
Planta Carenero/Planta Guatire	PDVSA	45	16
Puerto Ordaz/Ciudad Bolívar	PDVSA	44	8
Refinería El Palito refinery/Planta Yagua	PDVSA	29	16

## Notes:

1. Project underway.



## SECTION 7

### Oil prices



## Evolution of the Brent-WTI spread in recent years

Each year between 1983 and 2006, the American crude oil benchmark, WTI, remained more expensive than its European counterpart, Brent. This indicator, referred to as the Brent-WTI spread, averaged \$-1.35/b over that time period, with a standard deviation of \$0.61/b, and reached its minimum of \$-3.20/b in 2004. In 2007 it moved momentarily into positive territory and averaged \$0.26/b, before falling by \$2.89/b the next year to its second lowest value since the 1980s. In 2011 it sky-rocketed by \$16.19/b, over 666 times the average y-o-y change, and has stayed positive on a yearly basis ever since, marking a fundamental change in the global oil market.

The phenomenon of a low WTI price, in comparison with other global benchmarks, is often attributed to the oversupply in the United States (US) crude oil market. For the global market, oil oversupply can be defined as the difference between oil supply and demand, while on a country level trade plays the most crucial part. In the US, the situation is even more complicated with so many factors playing a role. The stocks levels at Cushing, Oklahoma, the delivery point for WTI — often described as the most significant trading hub connecting the Gulf Coast suppliers with northern consumers — is often used as the reference point for assessing over/undersupply in the US.

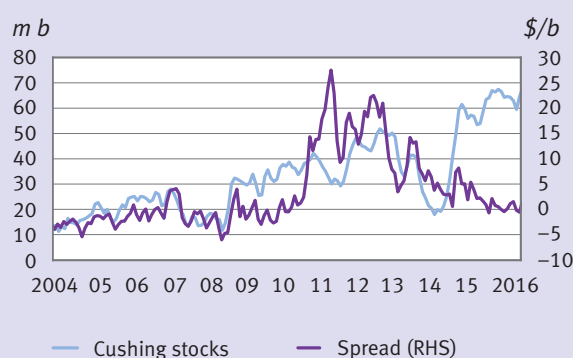
The global oil market situation in 2011, when the Brent-WTI spread saw a dramatic increase, was quite unique. Rising Canadian and US onshore production provided additional supply to the mid-continent, while US demand declined by over 200,000 b/d y-o-y. On the other side of the Atlantic, declines in North Sea production and outages in Libya provided support for Brent, which was appreciating not only towards WTI but also towards Dubai crudes. From December 2010 to February 2011, the Brent-WTI spread increased by a factor of six — from \$2.38/b to \$14.36/b — as the stocks at Cushing filled up and reached a local maximum of 86 per cent full at the end of March 2011. The quantities of crude available exceeded the sum of both: the capacity of local refineries and the capacity of infrastructure allowing its transport towards refining centres and ports in the Gulf Coast. In September 2011 the 12-month moving correlation between Cushing stock levels and the Brent-WTI spread turned negative for the first time since 2008, marking a temporary change in the relationship between the two variables. It stayed in negative territory for a year, during which the outflow of oil from Cushing doubled.

### Average yearly 12 month moving correlation between Cushing stock levels and Brent-WTI spread

2007	2008	2009	2010	2011	2012	2013	2014	2015
0.58	0.44	0.71	0.58	0.29	-0.01	0.15	0.61	0.30

As the pipeline network linking Cushing to the Gulf Coast developed, the outflow of oil from PADD 2, where Cushing is located, towards the refining centre in the Gulf Coast (PADD 3) rose gradually, contributing to bringing the spread down to \$3.45/b in July 2013. This relationship can be described by the correlation between the Brent-WTI spread and crude oil outflow from PADD 2, which stands at -0.82 for June 2011 to December 2016.

Cushing stocks vs Brent-WTI spread



Crude oil outflow from PADD 2 vs Brent-WTI spread

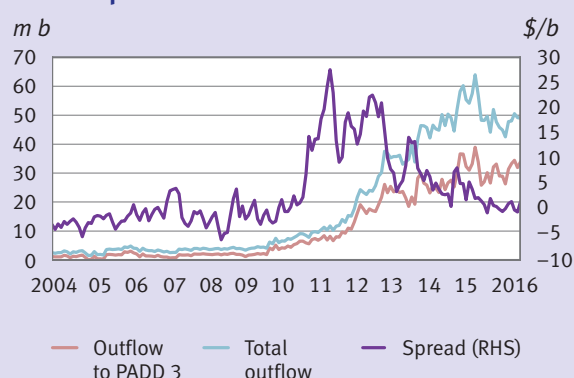


Table 7.1

**OPEC Reference Basket (ORB) and corresponding components spot prices**

(\$/b)

	Representative crude stream	2012	2013	2014	2015	2016
Algeria	Saharan Blend	111.49	109.38	99.68	52.79	44.28
Angola	Girassol	112.21	109.14	99.19	52.96	43.61
Ecuador	Oriente	102.76	97.74	87.31	44.94	38.44
Gabon	Rabi Light	na	na	na	52.83	42.62
IR Iran	Iran Heavy	109.06	105.73	96.18	48.80	39.57
Iraq	Basrah Light	107.96	103.60	94.45	47.87	39.53
Kuwait	Kuwait Export	108.93	105.04	95.32	48.13	39.30
Libya	Ess Sider	111.86	108.51	98.51	51.38	42.69
Nigeria	Bonny Light	113.66	111.36	100.85	52.95	44.02
Qatar	Marine	109.26	105.32	96.39	50.71	41.43
Saudi Arabia	Arab Light	110.22	106.53	97.18	49.85	40.96
United Arab Emirates	Murban	111.76	108.21	99.45	53.87	44.83
Venezuela	Merey	100.06	96.66	86.88	41.11	34.02
<b>OPEC</b>	<b>ORB</b>	<b>109.45</b>	<b>105.87</b>	<b>96.29</b>	<b>49.49</b>	<b>40.76</b>
ORB	Volatility <sup>1</sup>	7.96	3.93	14.56	8.50	7.28
ORB	Coefficient of variation <sup>2</sup> , %	7.27	3.71	15.12	17.18	17.85

**Notes:**

1. Standard deviation of daily prices.
2. Ratio of volatility to annual average price.

Graph 7.1

**OPEC Reference Basket**

(\$/b)

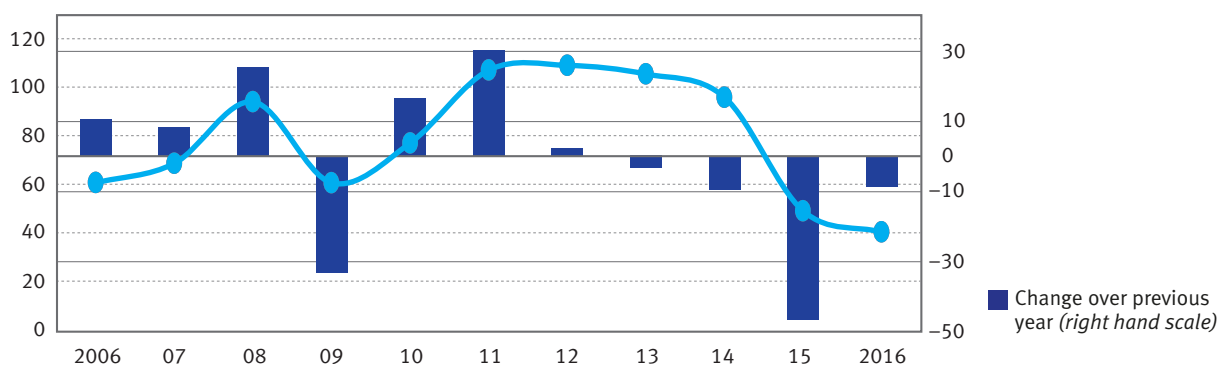




Table 7.2  
Selected spot crude oil prices

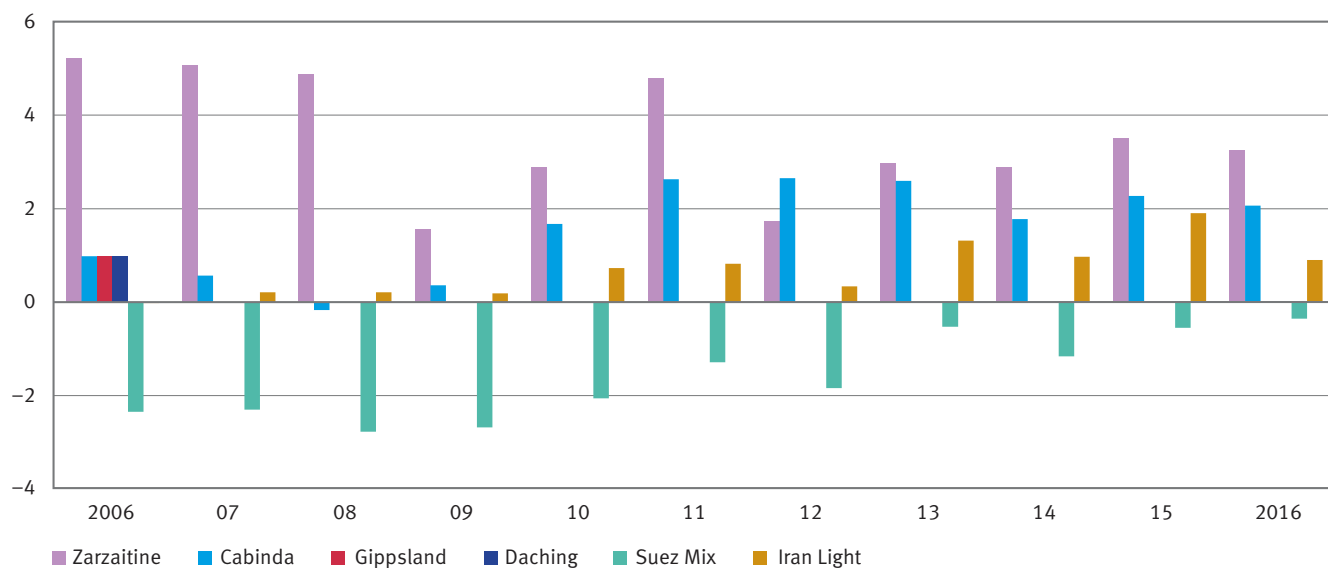
(\$/b)

	Crude stream	2012	2013	2014	2015	2016
Algeria	Zarzaitine	111.18	108.85	99.19	53.00	44.02
Angola	Cabinda	112.10	108.47	98.07	51.77	42.83
Egypt	Suez Mix	107.62	105.35	95.13	48.94	40.41
IR Iran	Iran Light	109.79	107.19	97.26	51.40	41.66
Indonesia	Minas	116.60	107.41	98.68	49.17	41.11
Libya	Brega	111.45	108.88	98.79	52.08	43.73
Malaysia	Miri	118.25	115.51	105.10	57.93	46.39
Malaysia	Tapis	116.98	114.39	103.15	55.75	45.69
Mexico	Isthmus	106.55	105.16	93.65	51.14	42.37
Mexico	Maya	99.65	97.31	85.80	44.11	36.52
Nigeria	Forcados	114.21	111.95	101.35	54.41	43.70
Norway	Ekosfisk	112.76	109.88	99.72	53.12	44.01
Norway	Oseberg	112.98	110.04	99.99	53.61	44.52
Oman	Oman	109.35	105.51	97.04	51.21	41.96
Qatar	Dukhan	110.34	107.05	98.44	52.87	43.69
Russia	Urals	110.49	108.00	98.08	51.90	42.16
Saudi Arabia	Arab Heavy	108.32	103.89	93.68	47.01	38.45
United Kingdom	Brent Dated	111.62	108.62	99.08	52.41	43.76
United Kingdom	Forties	111.62	108.65	99.14	52.50	43.42
United States	WTI	94.10	97.96	93.26	48.73	43.27
United Arab Emirates	Dubai	109.07	105.45	96.71	50.94	41.39
Spread	WTI — Brent	-17.52	-10.66	-5.82	-3.68	-0.49
	WTI — Dubai	-14.97	-7.49	-3.45	-2.21	1.88
	Brent — Dubai	2.55	3.17	2.37	1.47	2.37

Graph 7.2

## Differentials of selected spot crude oil prices to OPEC Reference Basket (1)

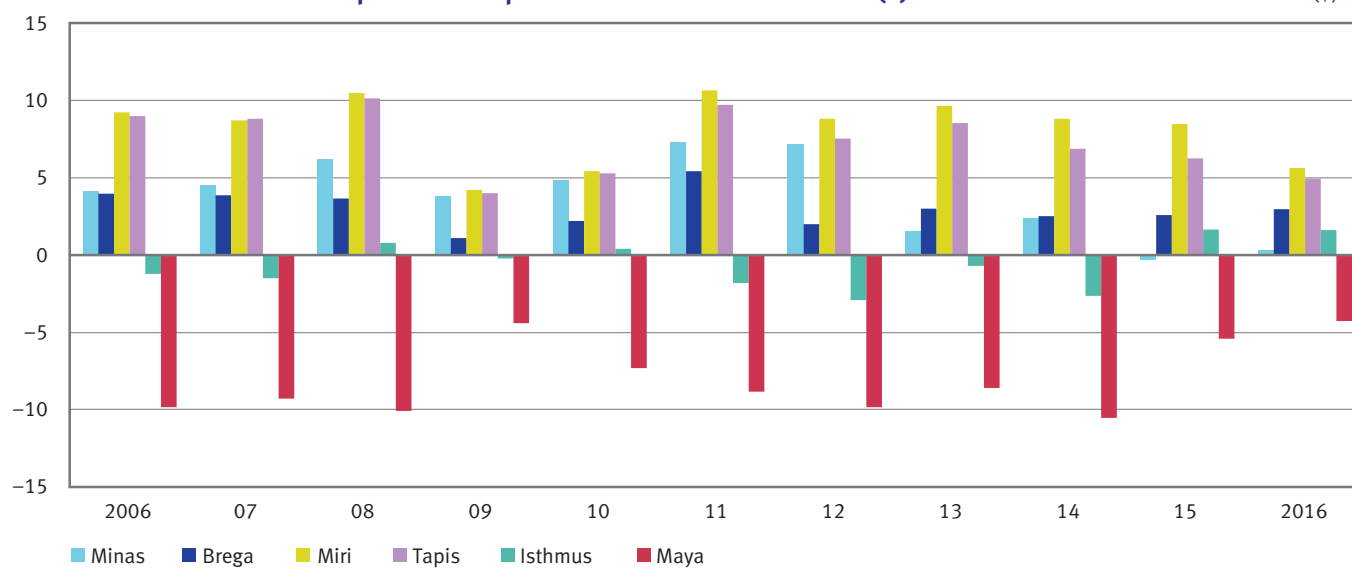
(\$/b)



Graph 7.3

## Differentials of selected spot crude oil prices to OPEC Reference Basket (2)

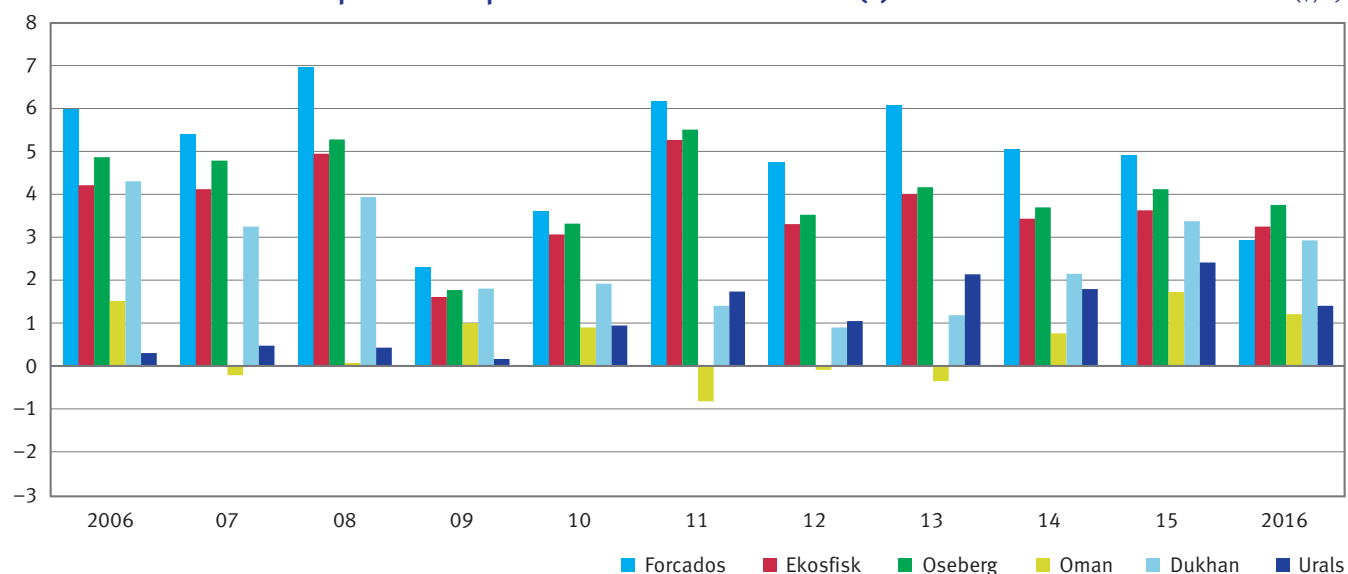
(\$/b)



Graph 7.4

## Differentials of selected spot crude oil prices to OPEC Reference Basket (3)

(\$/b)



Graph 7.5

## Differentials of selected spot crude oil prices to OPEC Reference Basket (4)

(\$/b)

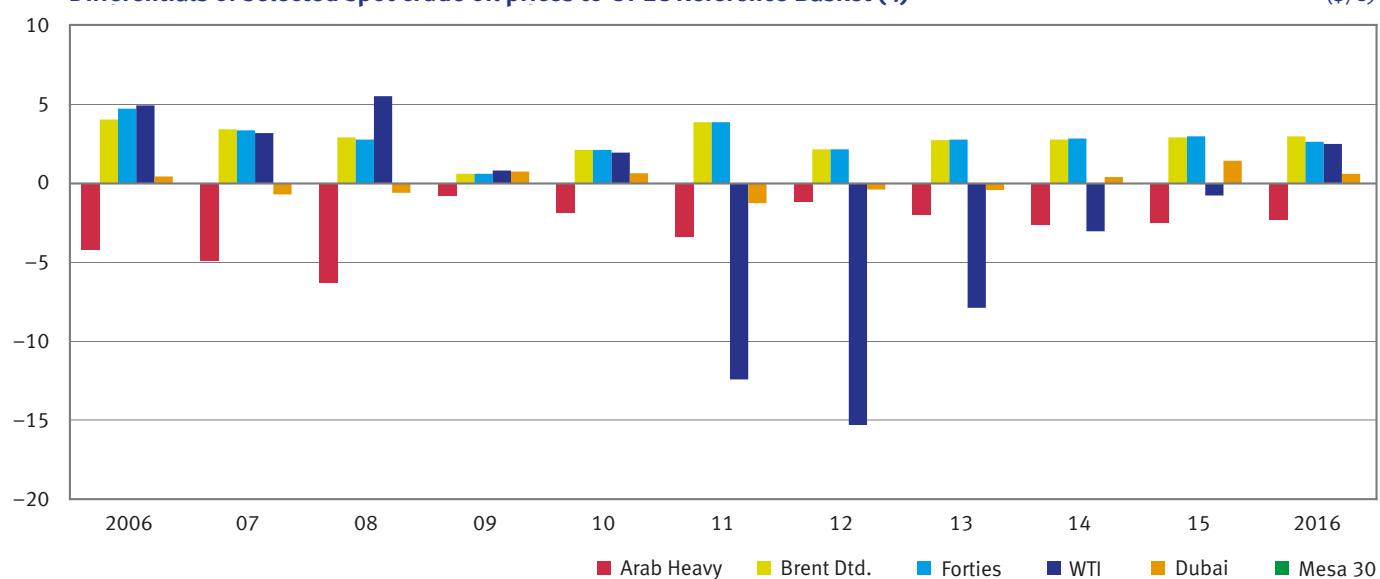


Table 7.3

ICE Brent, NYMEX WTI and DME Oman annual average of the 1<sup>st</sup>, 6<sup>th</sup> and 12<sup>th</sup> forward months (\$/b)

	2012	2013	2014	2015	2016
<b>ICE Brent</b>					
1 <sup>st</sup> forward month	111.69	108.69	99.45	53.60	45.13
6 <sup>th</sup> forward month	109.24	105.91	99.29	57.21	47.65
12 <sup>th</sup> forward month	106.68	103.02	98.30	60.18	49.49
<b>NYMEX WTI</b>					
1 <sup>st</sup> forward month	94.17	98.04	92.91	48.73	43.47
6 <sup>th</sup> forward month	95.99	96.33	90.23	52.56	46.88
12 <sup>th</sup> forward month	96.02	92.99	87.57	55.08	48.45
<b>DME Oman</b>					
1 <sup>st</sup> forward month	109.30	105.55	96.86	51.25	41.99
6 <sup>th</sup> forward month	106.97	103.07	96.61	54.36	43.89
12 <sup>th</sup> forward month	104.60	100.76	95.55	57.31	45.81

Table 7.4

OPEC Reference Basket in nominal and real terms

(\$/b)

	2012	2013	2014	2015	2016
Nominal oil price	109.45	105.87	96.29	49.49	40.76
<b>Nominal price adjusted for:</b>					
Exchange rates <sup>1</sup>	84.90	82.67	75.36	43.35	35.92
Inflation <sup>2</sup>	89.42	85.32	76.77	39.40	32.29
Combined <sup>3</sup>	69.36	66.62	60.09	34.52	28.46

**Notes:**

Base: 2001 = 100.

1. Based on weighted average index of currency exchange rates in the modified Geneva I Agreement (see Geneva I Agreement definition under 'General Notes').

2. Based on weighted average consumer price indices of modified Geneva I countries and the US.

3. Based on combined indices of exchange rates and inflation.

Graph 7.6

OPEC Reference Basket in nominal and real terms

(base 2001, \$/b)

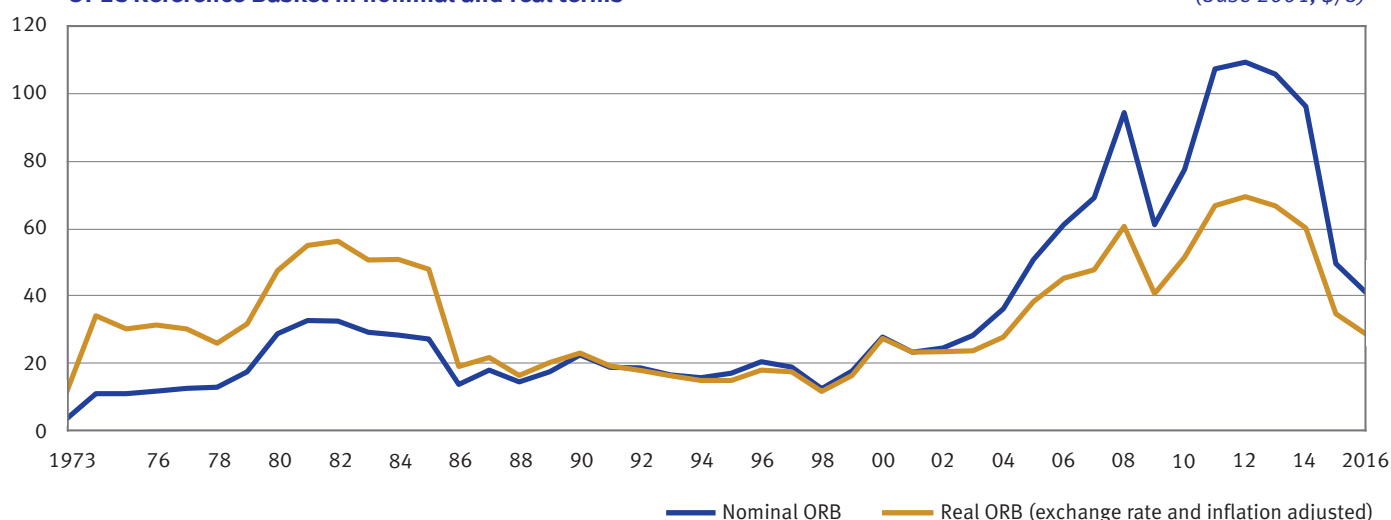


Table 7.5

**Annual average of premium factors for selected OPEC Reference Basket components**

(\$/b)

		2012	2013	2014	2015	2016
<b>Europe</b>						
Algeria	Saharan Blend	-0.11	0.75	0.61	0.38	0.52
IR Iran	Iran Heavy	-3.68	-3.70	-4.60	-5.09	-6.38
Iraq	Basrah Light	-3.88	-4.20	-4.74	-4.83	-4.74
Libya	Es Sider	0.25	-0.11	-0.56	-1.04	-1.08
Nigeria	Bonny Light	2.05	2.73	1.77	0.54	0.26
Saudi Arabia	Arab Light	-1.52	-1.52	-2.78	-3.53	-4.64
<b>Asia</b>						
IR Iran	Iran Heavy	0.50	0.48	-0.58	-2.24	-2.01
Iraq	Basrah Light	0.72	-0.14	-1.02	-2.81	-1.94
Kuwait	Kuwait Export	0.34	0.33	-0.96	-2.73	-2.31
Saudi Arabia	Arab Light	2.20	2.51	1.48	-0.85	-0.42
<b>US</b>						
Iraq	Basrah Light	-1.82	-1.87	0.06	-0.43	-0.59
Saudi Arabia	Arab Light	0.42	0.64	2.43	1.06	0.29
	Arab Medium	-1.85	-1.78	0.05	-0.53	-1.17
	Arab Heavy	-3.54	-3.45	-1.55	-1.13	-1.74

**Notes:**

Premium factors are related to corresponding benchmark crudes.

Table 7.6  
Spot prices of petroleum products in major markets

(\$/b)

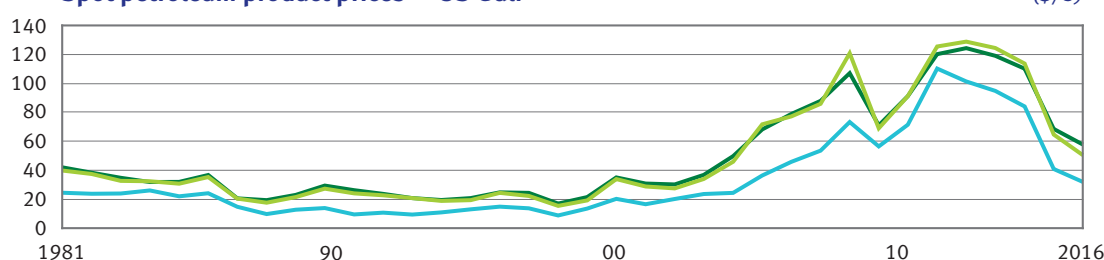
	Specifications	2012	2013	2014	2015	2016
<b>US Gulf</b>						
Gasoline	Regular unleaded 87	121.73	116.55	107.90	67.58	57.15
Gasoil	0.2% sulphur	126.02	121.75	111.39	63.80	50.10
Fuel oil	3.0% sulphur	99.36	93.05	82.67	40.78	32.13
<b>Singapore</b>						
Gasoline	Premium unleaded 97	126.41	121.51	111.96	71.41	57.81
Gasoil	0.05% sulphur	128.15	123.38	112.67	64.57	52.05
Fuel oil	380 centistokes	103.17	95.67	86.58	44.27	34.92
<b>Rotterdam</b>						
Gasoline	Premium unleaded 98	127.29	122.57	115.10	75.53	63.58
Gasoil	10ppm sulphur	129.18	123.87	112.91	66.03	53.28
Fuel oil	3.5% sulphur	100.10	93.89	83.68	40.75	29.64

## Notes:

US Gulf and Singapore prices apply to cargo. Rotterdam prices apply to barge size lots.

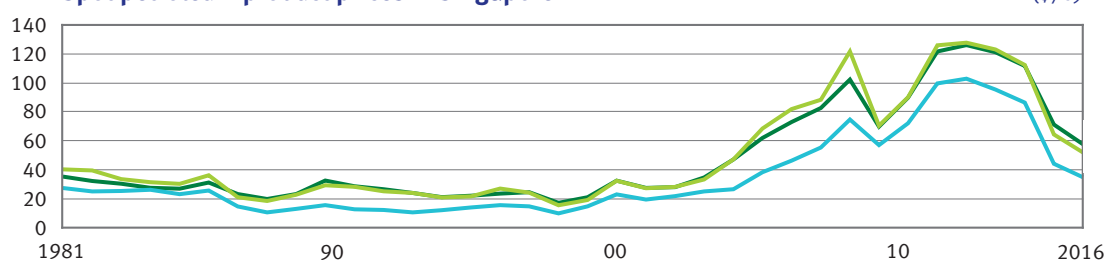
Graph 7.7  
Spot petroleum product prices – US Gulf

(\$/b)



Graph 7.8  
Spot petroleum product prices – Singapore

(\$/b)



Graph 7.9  
Spot petroleum product prices – Rotterdam

(\$/b)

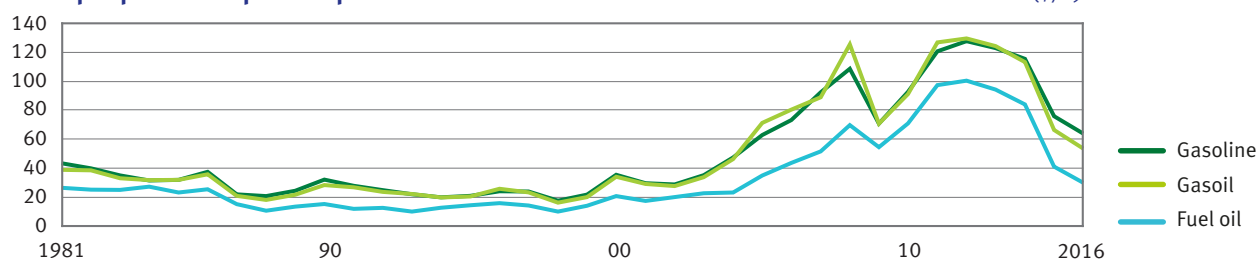


Table 7.7

**Retail prices of petroleum products in OPEC Members***(units of national currency/b)*

	2012	2013	2014	2015	2016
<b>Algeria</b>					
Gasoline	2,226.67	2,227.00	2,227.00	2,227.00	3,029.67
Diesel oil	1,370.00	1,370.00	1,370.00	1,370.00	1,828.42
Kerosene	nap	nap	nap	nap	nap
Fuel oil	nap	nap	nap	nap	nap
<b>Angola</b>					
Gasoline	9,540.00	9,540.00	14,310.00	18,285.00	25,440.00
Diesel oil	6,360.00	6,360.00	9,540.00	11,925.00	21,465.00
Kerosene	3,339.00	3,339.00	5,565.00	7,155.00	11,130.00
Fuel oil	8,830.86	8,830.86	7,950.00	12,561.00	13,395.75
<b>Ecuador</b>					
Gasoline	62.79	63.42	62.79	62.79	62.79
Diesel oil	37.80	39.53	37.80	37.80	43.26
Kerosene	37.88	39.53	37.80	37.80	37.80
Fuel oil	23.65	19.99	19.99	9.10	9.10
<b>Gabon</b>					
Gasoline	85,065.00	85,065.00	85,065.00	85,065.00	90,630.00
Diesel oil	74,730.00	74,730.00	74,730.00	74,730.00	80,454.00
Kerosene	na	na	na	na	na
Fuel oil	nap	nap	nap	nap	nap
<b>IR Iran</b>					
Gasoline	1,192,500.00	1,192,500.00	1,192,500.00	1,749,000.00	1,749,000.00
Diesel oil	159,000.00	159,000.00	159,000.00	477,000.00	795,000.00
Kerosene	159,000.00	159,000.00	159,000.00	238,500.00	2,146,500.00
Fuel oil	318,000.00	318,000.00	318,000.00	477,000.00	1,590,000.00
<b>Iraq</b>					
Gasoline	71,550.00	71,550.00	71,550.00	82,150.00	92,750.00
Diesel oil	63,600.00	63,600.00	63,600.00	55,650.00	47,700.00
Kerosene	23,850.00	23,850.00	23,850.00	31,800.00	39,750.00
Fuel oil	nap	nap	nap	nap	nap
<b>Kuwait</b>					
Gasoline	11.40	11.40	11.40	11.40	13.87
Diesel oil	8.75	8.75	8.75	24.05	14.11
Kerosene	8.75	8.75	8.75	24.05	14.11
Fuel oil	nap	nap	nap	nap	nap
<b>Libya</b>					
Gasoline	23.85	23.85	23.85	na	na
Diesel oil	27.03	27.03	27.03	na	na
Kerosene	12.72	12.72	12.72	na	na
Fuel oil	nap	nap	nap	nap	nap
<b>Nigeria</b>					
Gasoline	15,423.00	15,423.00	15,423.00	14,628.00	18,505.48
Diesel oil	25,110.87	24,853.29	24,853.29	18,084.66	17,474.10
Kerosene	7,950.00	7,950.00	7,950.00	7,950.00	18,954.39
Fuel oil	18,585.51	18,394.87	18,394.87	10,654.63	10,294.91



Table 7.7

**Retail prices of petroleum products in OPEC Members***(units of national currency/b)*

	2012	2013	2014	2015	2016
<b>Qatar</b>					
Gasoline	143.10	147.08	147.08	194.78	254.40
Diesel oil	111.30	159.00	238.50	238.50	238.50
Kerosene	nap	nap	nap	nap	nap
Fuel oil	nap	nap	nap	nap	nap
<b>Saudi Arabia</b>					
Gasoline	83.48	83.48	83.48	107.33	131.18
Diesel oil	39.75	39.75	39.75	55.65	71.63
Kerosene	69.17	69.17	69.17	82.78	96.39
Fuel oil	nap	nap	nap	nap	nap
<b>United Arab Emirates</b>					
Gasoline	218.56	262.52	262.52	278.25	259.04
Diesel oil	300.74	361.27	361.27	354.57	266.59
Kerosene	nap	nap	nap	nap	nap
Fuel oil	nap	nap	nap	nap	nap
<b>Venezuela</b>					
Gasoline	13.28	13.28	13.28	13.28	556.50
Diesel oil	7.63	7.63	7.63	7.63	7.63
Kerosene	468.88	671.27	648.93	333.87	196.89
Fuel oil	9.62	9.62	9.62	9.62	9.62

Table 7.8

**Crack spread in major markets***(\$/b)*

Specifications		2012	2013	2014	2015	2016
<b>US Gulf crack spread vs WTI</b>						
Gasoline	Regular unleaded 87	33.13	21.26	20.56	18.99	14.10
Gasoil	0.2% sulphur	37.42	26.46	24.05	14.96	6.98
Fuel oil	3.0% sulphur	10.76	-2.24	-4.67	-8.01	-11.09
<b>Singapore crack spread vs Dubai</b>						
Gasoline	Premium unleaded 97	17.34	16.06	15.25	20.43	16.55
Gasoil	0.05% sulphur	19.08	17.93	15.96	13.05	10.50
Fuel oil	380 centistokes	-5.90	-9.78	-10.13	-6.10	5.78
<b>Rotterdam crack spread vs Brent</b>						
Gasoline	Premium unleaded 98	18.22	17.12	18.39	23.14	19.86
Gasoil	10ppm sulphur	20.11	18.42	16.20	13.51	9.57
Fuel oil	3.5% sulphur	-8.97	-11.56	-13.03	-10.75	-7.26

**Notes:**

US Gulf and Singapore prices apply to cargo. Rotterdam prices apply to barge size lots.



## SECTION 8

### Taxes on oil



## Petroleum taxation in main OECD countries

Every increase in oil price is thought to raise fuel costs to the detriment of consumers while generating huge income for foreign oil producers — such as OPEC Member Countries. But this is a misconception. While huge revenues are indeed generated, they are earned primarily by major oil consuming countries. OECD economies, for example, earn far more revenue from the retail sale of petroleum products than OPEC Countries make from the original sale of their oil.

In principle, in most industrialized economies, there are two types of taxes imposed on oil-derived fuels at pump stations. The first one is a fixed fee added to the fuel on a per litre basis. It goes by various names like, for example, an excise tax, fuel tax or a CO<sub>2</sub> tax. Most countries impose a combination of these. The other one is a given percentage share imposed on both the raw fuel price and the fixed tax component called value added tax (VAT). Within such tax schemes, when the raw fuel price decreases the share of tax in percentage terms rises.

Through this taxation scheme, from 2012 to 2016, OECD economies earned on average about \$1,498bn/yr more from retail sales of petroleum products than OPEC Member Countries made from oil revenues. A significant amount of the final retail prices of petroleum products is attributed to high taxation rates. In fact, during 2016, the share of total tax of the final retail price amounted to around 54 per cent in the main OECD countries. Therefore, the real burden on end-use consumers comes from taxes — not from the original price paid for crude oil. Moreover, between 2012 and 2016, OECD countries earned on average \$1,100bn/yr from taxes alone compared to OPEC's \$835bn/yr in oil revenues. And while the trillions of dollars earned from oil taxes are pure income for OECD governments, oil export revenues of OPEC Member Countries must also cover the high costs of exploration, production and transportation. In a comparison of a composite barrel of oil between 2013 and 2016 in the OECD, crude oil prices plummeted by 41 per cent, while taxes increased by 20 per cent.

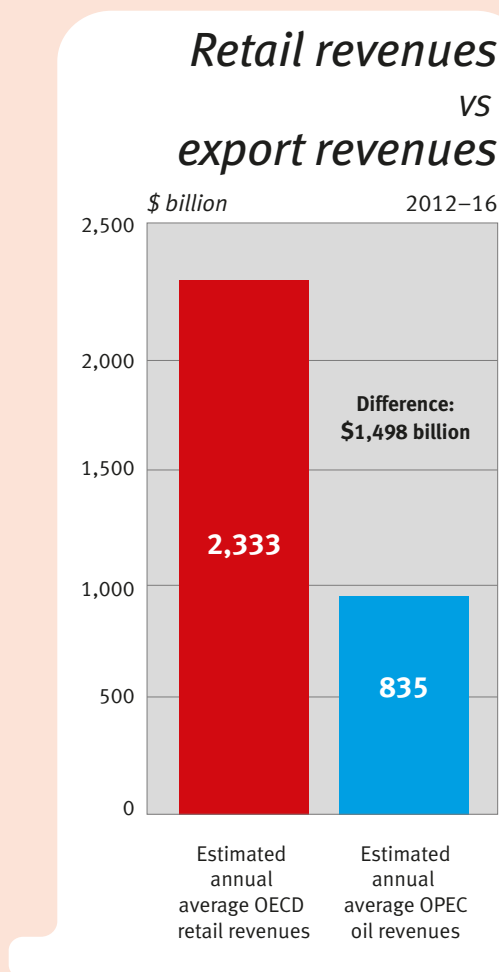


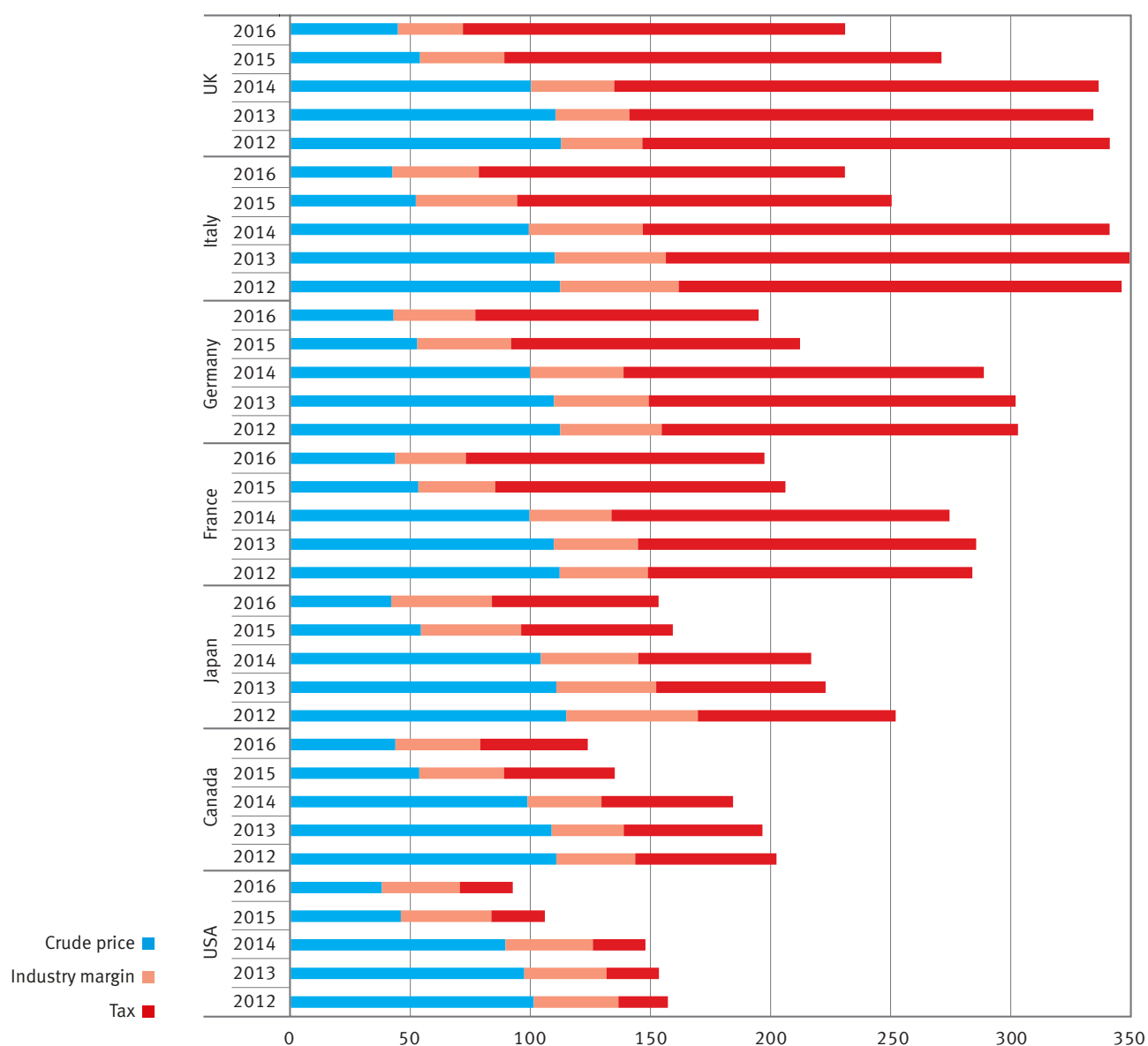
Table 8.1  
Composite barrel and its components in major OECD oil consuming countries

(\$/b)

	2012			2013			2014			2015			2016		
	\$/b	% share	% change y-o-y	\$/b	% share	% change y-o-y	\$/b	% share	% change y-o-y	\$/b	% share	% change y-o-y	\$/b	% share	% change y-o-y
<b>United States</b>															
Composite barrel	157.09		3.1	153.34		-2.4	147.69		-3.7	105.81		-28.4	92.46		-12.6
Crude cif price	101.16	64.4	-1.2	97.25	63.4	-3.9	89.43	60.6	-8.0	45.83	43.3	-48.8	37.94	41.0	-17.2
Tax	20.65	13.1	0.5	21.81	14.2	5.6	21.88	14.8	0.3	22.29	21.1	1.9	22.11	23.9	-0.8
Industry margin	35.28	22.5	19.9	34.28	22.4	-2.8	36.37	24.6	6.1	37.69	35.6	3.6	32.41	35.0	-14.0
<b>Canada</b>															
Composite barrel	202.34		2.5	196.43		-2.9	184.18		-6.2	134.96		-26.7	123.67		-8.4
Crude cif price	110.61	54.7	-0.2	108.60	55.3	-1.8	98.60	53.5	-9.2	53.48	39.6	-45.8	43.57	35.2	-18.5
Tax	58.88	29.1	2.8	57.74	29.4	-1.9	54.76	29.7	-5.2	46.21	34.2	-15.6	44.76	36.2	-3.1
Industry margin	32.85	16.2	11.8	30.09	15.3	-8.4	30.83	16.7	2.4	35.27	26.1	14.4	35.34	28.6	0.2
<b>Japan</b>															
Composite barrel	252.00		-0.8	222.76		-11.6	216.76		-2.7	159.11		-26.6	153.17		-3.7
Crude cif price	114.75	45.5	5.0	110.61	49.7	-3.6	104.16	48.1	-5.8	54.20	34.1	-48.0	41.79	27.3	-22.9
Tax	82.48	32.7	-3.8	70.59	31.7	-14.4	72.03	33.2	2.0	63.17	39.7	-12.3	69.37	45.3	9.8
Industry margin	54.77	21.7	-7.1	41.56	18.7	-24.1	40.57	18.7	-2.4	41.75	26.2	2.9	42.01	27.4	0.6
<b>France</b>															
Composite barrel	283.93		-3.4	285.54		0.6	274.40		-3.9	206.08		-24.9	197.31		-4.3
Crude cif price	112.01	39.5	0.2	109.56	38.4	-2.2	99.40	36.2	-9.3	53.14	25.8	-46.5	43.48	22.0	-18.2
Tax	135.23	47.6	-6.2	140.93	49.4	4.2	140.80	51.3	-0.1	120.96	58.7	-14.1	124.38	63.0	2.8
Industry margin	36.69	12.9	-3.1	35.05	12.3	-4.5	34.20	12.5	-2.4	31.98	15.5	-6.5	29.45	14.9	-7.9
<b>Germany</b>															
Composite barrel	302.95		-2.6	301.96		-0.3	288.69		-4.4	212.11		-26.5	194.90		-8.1
Crude cif price	112.21	37.0	1.4	109.62	36.3	-2.3	99.76	34.6	-9.0	52.65	24.8	-47.2	42.80	22.0	-18.7
Tax	148.43	49.0	-6.5	152.84	50.6	3.0	150.11	52.0	-1.8	120.38	56.8	-19.8	118.06	60.6	-1.9
Industry margin	42.31	14.0	1.4	39.50	13.1	-6.6	38.82	13.4	-1.7	39.08	18.4	0.7	34.04	17.5	-12.9
<b>Italy</b>															
Composite barrel	346.10		6.9	349.45		1.0	341.10		-2.4	250.27		-26.6	230.81		-7.8
Crude cif price	112.18	32.4	1.8	109.98	31.5	-2.0	99.09	29.1	-9.9	52.06	20.8	-47.5	42.33	18.3	-18.7
Tax	184.56	53.3	12.8	193.23	55.3	4.7	194.42	57.0	0.6	156.04	62.3	-19.7	152.54	66.1	-2.2
Industry margin	49.35	14.3	-0.9	46.24	13.2	-6.3	47.59	14.0	2.9	42.17	16.9	-11.4	35.94	15.6	-14.8
<b>United Kingdom</b>															
Composite barrel	341.20		2.0	334.32		-2.0	336.57		0.7	271.03		-19.5	230.91		-14.8
Crude cif price	112.62	33.0	-0.8	110.27	33.0	-2.1	100.07	29.7	-9.3	53.81	19.9	-46.2	44.62	19.3	-17.1
Tax	194.79	57.1	0.7	193.29	57.8	-0.8	201.89	60.0	4.4	182.10	67.2	-9.8	159.21	69.0	-12.6
Industry margin	33.79	9.9	22.1	30.76	9.2	-9.0	34.61	10.3	12.5	35.12	13.0	1.5	27.08	11.7	-22.9
<b>G7</b>															
Composite barrel	269.37		1.0	263.40		-2.2	255.63		-3.0	191.34		-25.1	174.75		-8.7
Crude cif price	110.79	41.1	0.9	107.98	41.0	-2.5	98.64	38.6	-8.6	52.17	27.3	-47.1	42.36	24.2	-18.8
Tax	117.86	43.8	0.2	118.63	45.0	0.7	119.41	46.7	0.7	101.59	53.1	-14.9	98.64	56.4	-2.9
Industry margin	40.72	15.1	3.7	36.78	14.0	-9.7	37.57	14.7	2.1	37.58	19.6	-	33.75	19.3	-10.2
<b>OECD</b>															
Composite barrel	271.41		0.8	272.28		0.3	263.92		-3.1	197.98		-25.0	181.74		-8.2
Crude cif price	111.06	40.9	0.6	108.53	39.9	-2.3	99.25	37.6	-8.6	52.17	26.4	-47.4	42.64	23.5	-18.3
Tax	119.19	43.9	-1.7	122.56	45.0	2.8	119.91	45.4	-2.2	99.95	50.5	-16.6	97.85	53.8	-2.1
Industry margin	41.16	15.2	9.0	41.19	15.1	0.1	44.76	17.0	8.7	45.86	23.2	2.5	41.24	22.7	-10.1

Graph 8.1  
Composite barrel and its components in volume

(\$/b)



Graph 8.2  
Composite barrel and its components

(%)

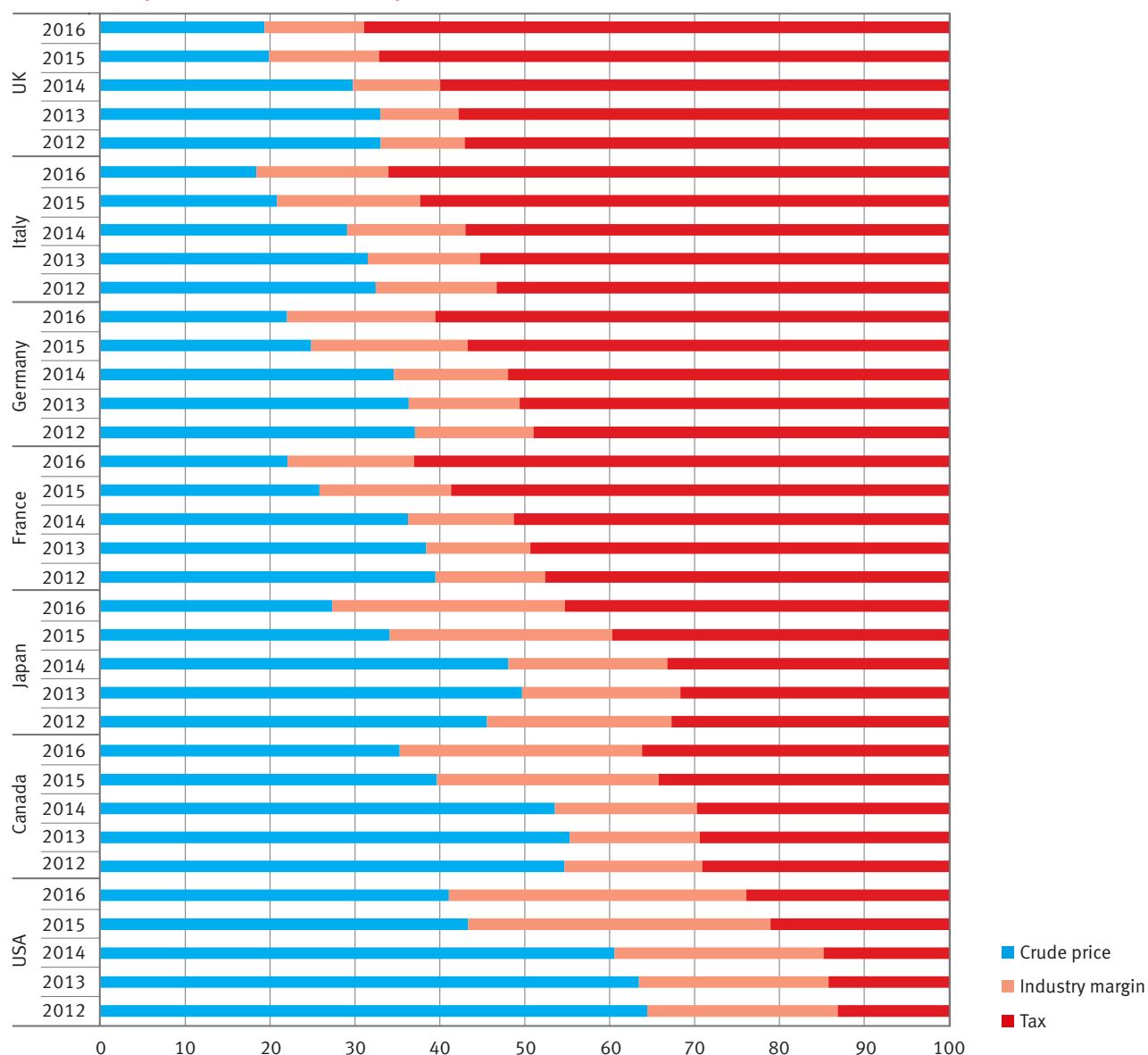


Table 8.2

**Tax to CIF crude oil price ratio in major OECD oil consuming countries***(ratio)*

	2012	2013	2014	2015	2016
USA	0.20	0.22	0.24	0.49	0.58
Canada	0.53	0.53	0.56	0.86	1.03
Japan	0.72	0.64	0.69	1.17	1.66
France	1.21	1.29	1.42	2.28	2.86
Germany	1.32	1.39	1.50	2.29	2.76
Italy	1.65	1.76	1.96	3.00	3.60
UK	1.73	1.75	2.02	3.38	3.57
G7	1.06	1.10	1.21	1.95	2.33
OECD	1.07	1.13	1.21	1.92	2.29

**Notes:**

G7 includes Canada, France, Germany, Italy, Japan, the United Kingdom and the United States.

Table 8.3

**Euro Big 4 household energy prices, 2016***(\$/toe NCV)*

	Automotive diesel	Premium unleaded 95 RON	Liquefied petroleum gas	Natural gas	Electricity
Tax	996.0	1,254.4	372.1	217.4	1,032.6
Non-tax	545.9	595.7	698.3	741.3	1,878.1
Total price	1,541.9	1,850.0	1,070.5	958.7	2,910.7
Tax share (%)	64.6	67.8	34.8	22.7	35.5

**Notes:**

Euro Big 4 includes France, Germany, Italy and the United Kingdom.

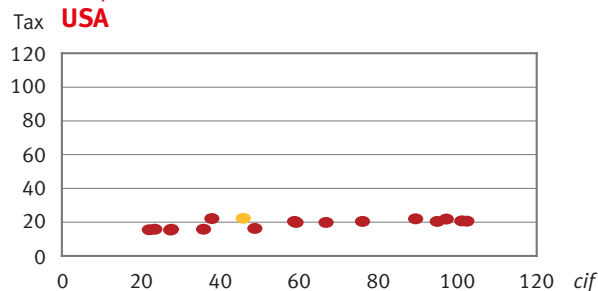


Graphs 8.3–8.11

Tax versus CIF crude oil price for major OECD oil consuming countries, 2000–2016 (\$/b) (\$/b)

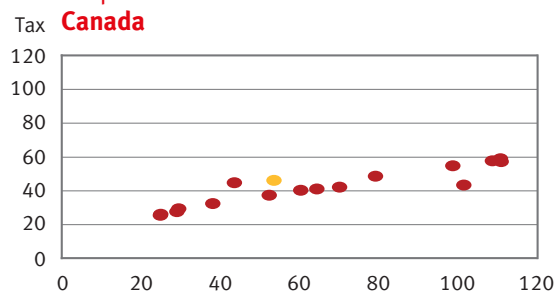
Graph 8.3

USA



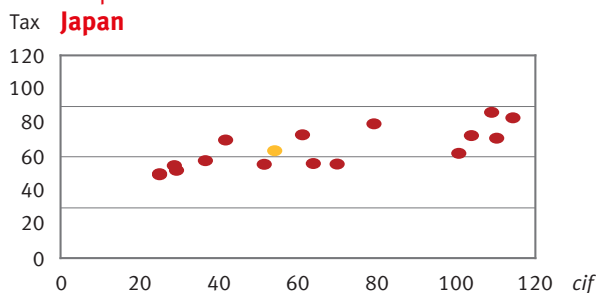
Graph 8.4

Canada



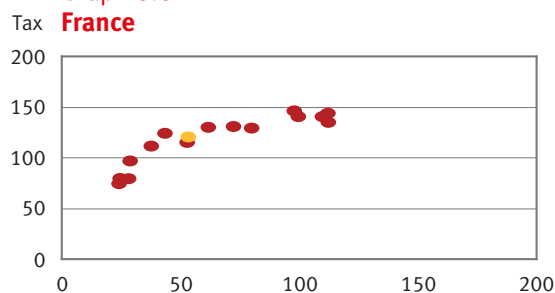
Graph 8.5

Japan



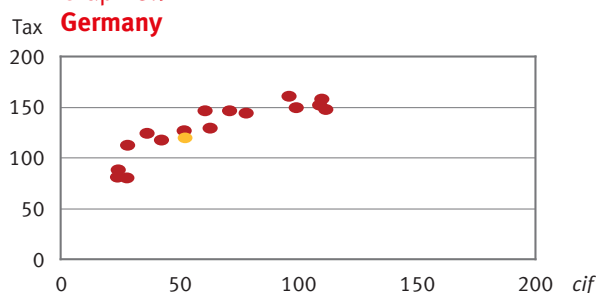
Graph 8.6

France



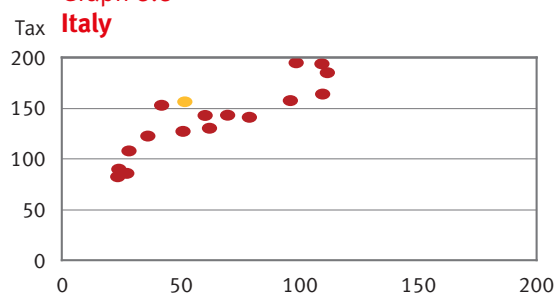
Graph 8.7

Germany



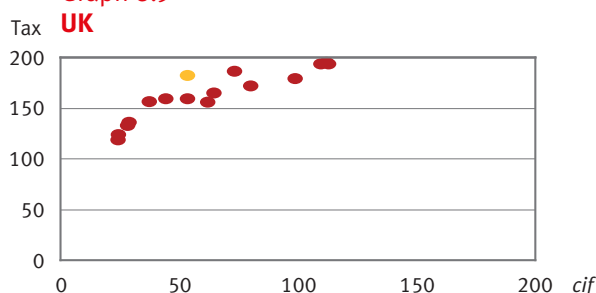
Graph 8.8

Italy



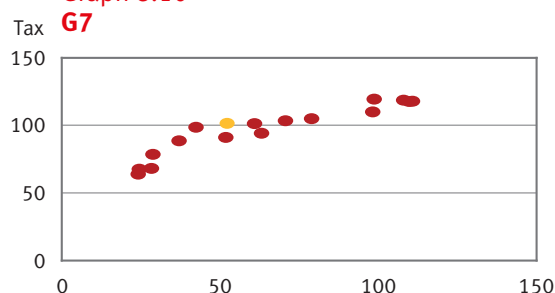
Graph 8.9

UK



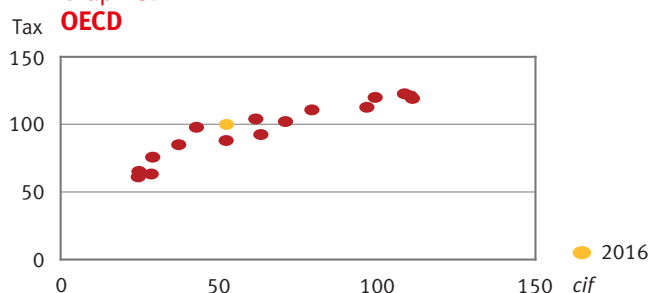
Graph 8.10

G7



Graph 8.11

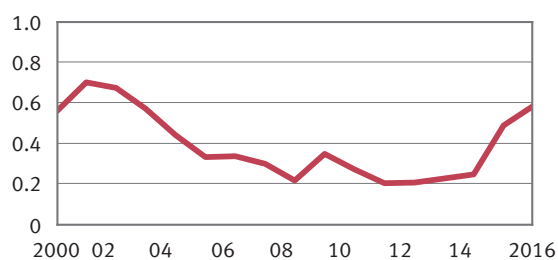
OECD



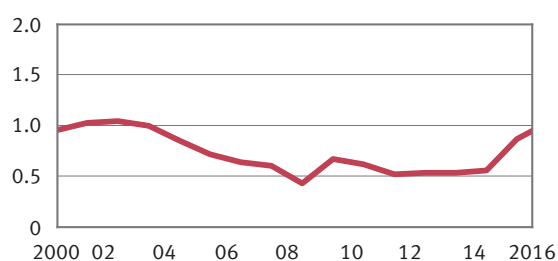
Graph 8.12–8.20

**Tax to CIF crude oil price ratio for major OECD oil consuming countries***(ratio)*

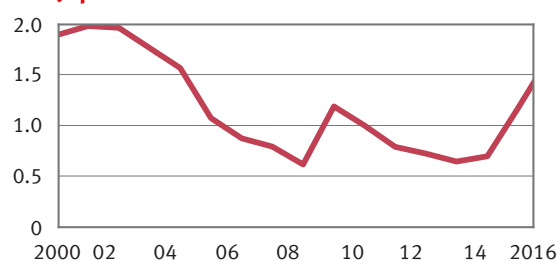
Graph 8.12

**USA**

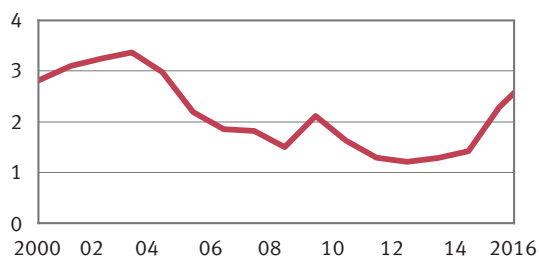
Graph 8.13

**Canada**

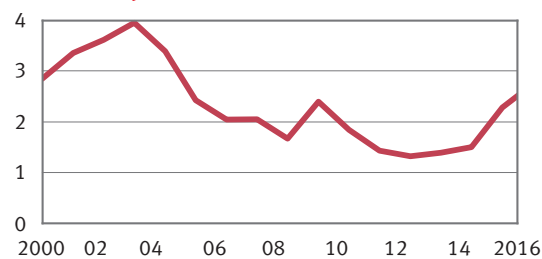
Graph 8.14

**Japan**

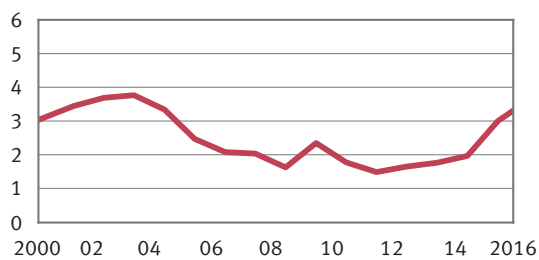
Graph 8.15

**France**

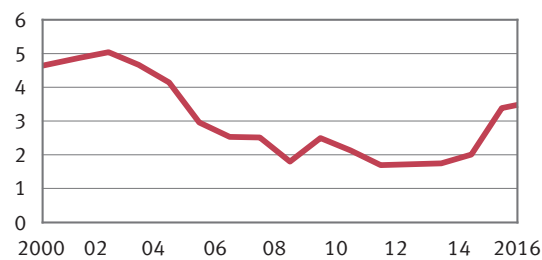
Graph 8.16

**Germany**

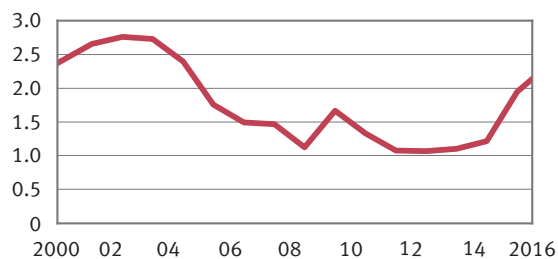
Graph 8.17

**Italy**

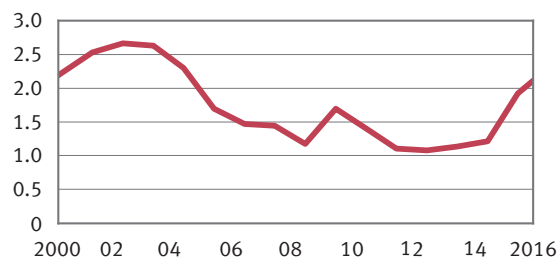
Graph 8.18

**UK**

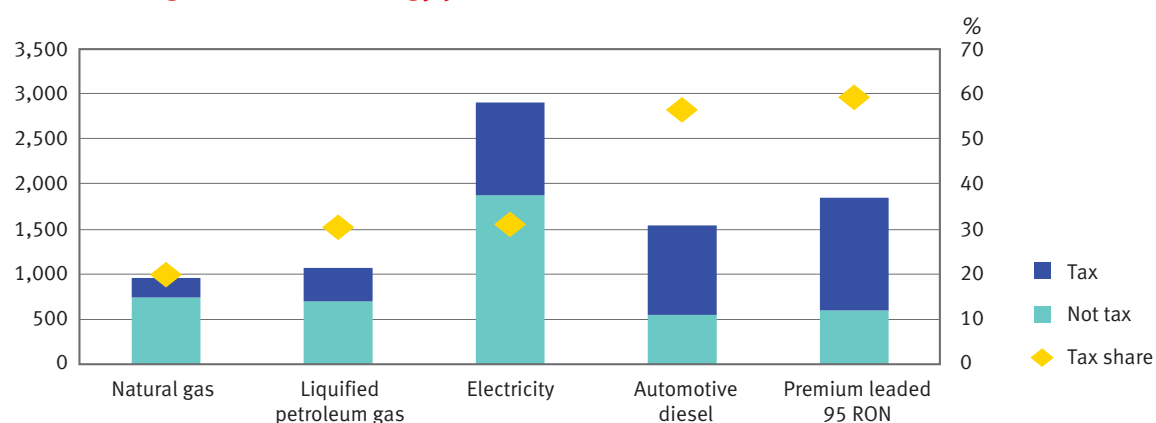
Graph 8.19

**G7**

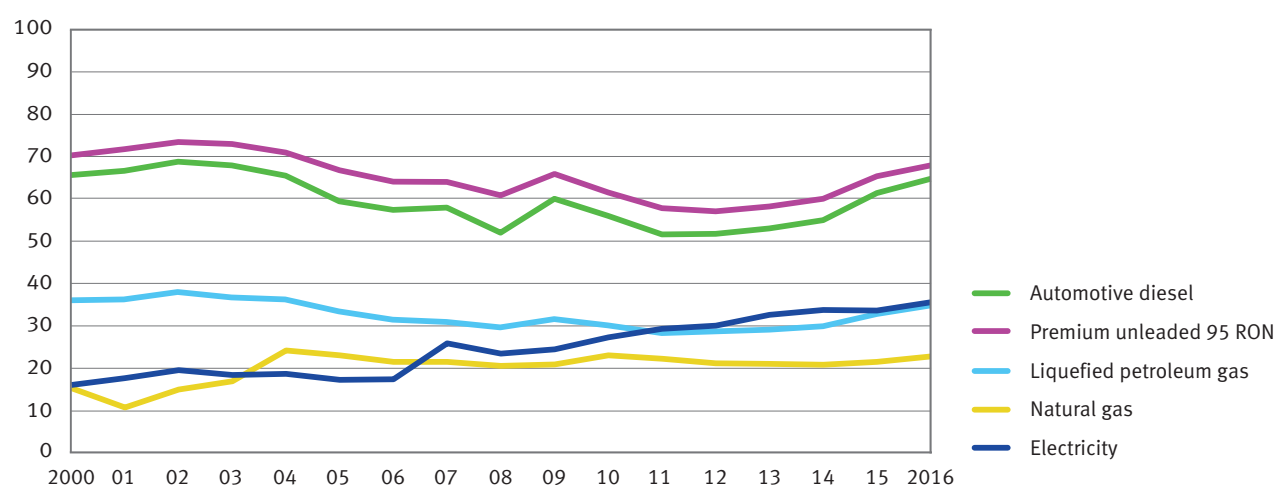
Graph 8.20

**OECD**

Graph 8.21  
Euro Big 4 household energy prices, 2016 (\$/toe NCV)



Graph 8.22  
Euro Big 4 share of tax in household energy prices (%)





# SECTION 9

## Natural gas data

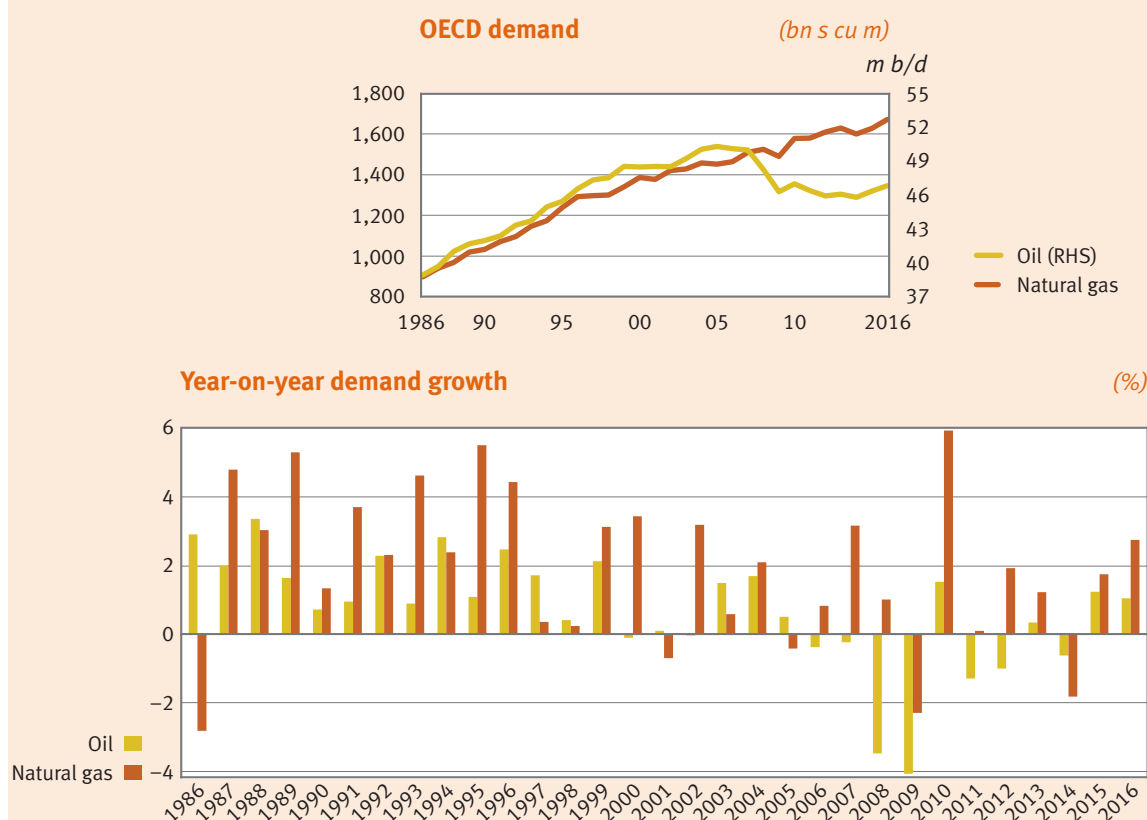


## Historical trends in OECD natural gas and oil demand

OECD natural gas and oil demand accounted for roughly 46 and 49 per cent of world natural gas and oil demand, respectively, in 2016. While their overall shares of both natural gas and oil have shown declining trends during the last decade, they differ substantially in the development of their respective trends. Natural gas demand grew by more than 14 per cent during the period 2006–2015, and gas seemed to be particularly favoured in regions and countries with increasing domestic production, such as the United States and Canada. During the same period, 2006–2015, oil requirements fell by almost seven per cent. Furthermore, average year-on-year growth has slowed down during the last decade for both natural gas and oil — from around two per cent to one per cent for natural gas and from one per cent to a slight decline for oil.

The co-evolution of historical demand for both OECD natural gas and oil could be further examined by applying simple linear regression models with the inclusion of the year and a dummy variable — with the latter capturing a structural break beginning in 2006. For both oil and natural gas regression models, the effect of the binary variable has been significantly different than zero ( $p < 0.00$ ), though with diverse developments. OECD oil demand switched from average yearly growth of  $b_{11} \approx 0.60m\ b/d$  during the period 1986–2005 to an average decline of  $b_{12} \approx -0.36m\ b/d$  during the years thereafter. Natural gas grew on average stronger by  $b_{21} \approx 30.86bn\ s\ cu\ m$  between 1986–2005 compared to the last decade when it was  $b_{22} \approx 18.62bn\ s\ cu\ m$ .

Yearly growth in OECD natural gas requirements is significantly higher than OECD oil requirements for the majority of years between 1986 and 2016 ( $p < 0.01$ ), with the differences becoming even larger as of 2006.



**Statistics of OECD demand**

Regression model	Coefficient	Estimate	p-value	R <sup>2</sup>
<b>Oil (1986–2005)</b>	$b_{11}$	0.60	<0.00	0.97
<b>Oil (2006–2016)</b>	$b_{12}$	–0.36	<0.00	0.54
<b>Natural gas (1986–2005)</b>	$b_{21}$	30.86	<0.00	0.98
<b>Natural gas (2006–2016)</b>	$b_{22}$	18.62	<0.00	0.87

1. Simple linear regression model with the year as an independent variable.

Table 9.1

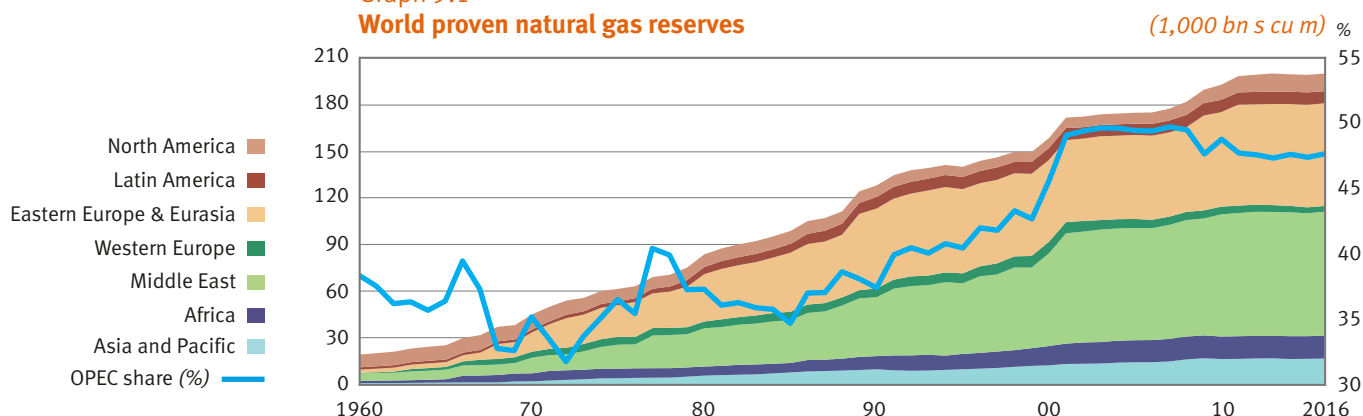
## World proven natural gas reserves by country

(bn s cu m)

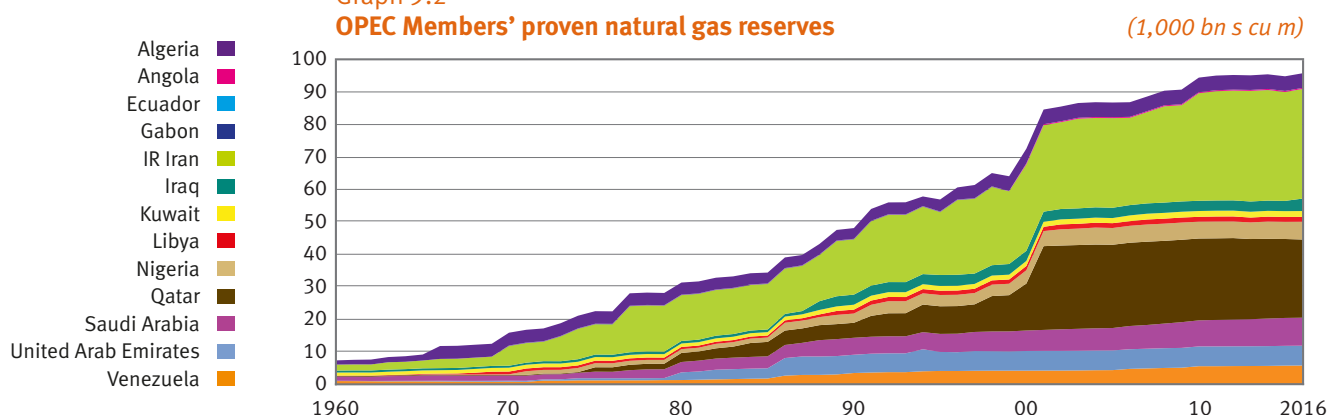
	2012	2013	2014	2015	2016	% change 16/15
<b>North America</b>	<b>11,121.0</b>	<b>11,725.5</b>	<b>11,212.4</b>	<b>11,365.1</b>	<b>11,365.1</b>	–
Canada	1,660.0	1,700.0	2,028.0	2,180.7	2,180.7	–
United States	9,461.0	10,025.5	9,184.4	9,184.4	9,184.4	–
<b>Latin America</b>	<b>7,971.4</b>	<b>7,997.8</b>	<b>7,980.8</b>	<b>7,982.9</b>	<b>7,876.4</b>	–1.3
Argentina	316.0	328.0	332.0	341.0	325.0	–4.7
Bolivia	317.0	296.0	300.0	305.0	300.5	–1.5
Brazil	459.0	458.0	471.0	429.0	391.7	–8.7
Chile	41.0	41.0	40.0	40.0	40.0	–
Colombia	162.0	156.0	135.0	123.0	112.8	–8.3
Ecuador	6.4	6.0	10.9	10.9	10.9	–
Mexico	360.0	347.0	324.0	317.5	269.9	–15.0
Peru	359.0	425.8	413.9	399.0	384.2	–3.7
Trinidad & Tobago	375.0	346.0	325.0	305.0	289.8	–5.0
Venezuela	5,563.0	5,581.0	5,617.0	5,701.5	5,739.7	0.7
Others	13.0	13.0	12.0	11.0	12.0	9.1
<b>Eastern Europe and Eurasia</b>	<b>64,921.0</b>	<b>65,327.1</b>	<b>65,795.6</b>	<b>66,291.7</b>	<b>66,291.1</b>	–
Armenia	18.0	18.0	18.0	18.0	18.0	–
Azerbaijan	1,308.0	1,300.0	1,292.0	1,284.0	1,284.0	–
Kazakhstan	1,950.0	1,929.0	1,918.0	1,907.0	1,907.0	–
Poland	69.0	69.0	62.9	60.7	60.7	–
Romania	109.0	113.0	109.2	103.0	103.0	–
Russia	48,810.0	49,335.0	49,896.0	50,485.0	50,485.0	–
Turkmenistan	10,000.0	9,933.8	9,904.2	9,870.0	9,870.0	–
Ukraine	969.0	969.0	960.0	952.0	952.0	–
Uzbekistan	1,661.0	1,632.0	1,608.0	1,585.0	1,585.0	–
Others	27.0	28.2	27.3	27.0	26.4	–2.2
<b>Western Europe</b>	<b>4,564.0</b>	<b>4,394.1</b>	<b>4,098.7</b>	<b>3,821.2</b>	<b>3,751.2</b>	–1.8
Denmark	95.0	90.0	88.0	85.0	72.3	–15.0
Germany	71.0	62.5	51.2	46.4	45.5	–2.0
Italy	62.0	56.0	53.7	49.1	46.6	–5.0
Netherlands	1,072.0	989.0	864.0	773.0	799.3	3.4
Norway	2,685.0	2,654.0	2,547.0	2,445.1	2,362.0	–3.4
United Kingdom	481.0	452.0	407.0	333.0	336.0	0.9
Others	98.0	90.6	87.8	89.6	89.6	–
<b>Middle East</b>	<b>80,131.0</b>	<b>80,087.0</b>	<b>80,102.2</b>	<b>79,419.3</b>	<b>80,060.4</b>	0.8
IR Iran	33,780.0	34,020.0	34,020.0	33,500.0	33,721.2	0.7
Iraq	3,158.0	3,158.0	3,158.0	3,158.0	3,819.9	21.0
Kuwait	1,784.0	1,784.0	1,784.0	1,784.0	1,784.0	–
Oman	950.0	950.0	950.0	931.0	884.5	–5.0
Qatar	25,069.0	24,681.0	24,531.3	24,299.1	24,072.5	–0.9
Saudi Arabia	8,235.0	8,317.0	8,488.9	8,588.2	8,619.3	0.4
United Arab Emirates	6,091.0	6,091.0	6,091.0	6,091.0	6,091.0	–
Others	1,064.0	1,086.0	1,079.0	1,068.0	1,068.0	–
<b>Africa</b>	<b>14,591.4</b>	<b>14,515.3</b>	<b>14,761.2</b>	<b>14,617.5</b>	<b>14,808.5</b>	1.3
Algeria	4,504.0	4,504.0	4,504.0	4,504.0	4,504.0	–
Angola	275.0	275.0	308.1	308.1	308.1	–
Cameroon	153.0	144.0	154.0	153.0	153.0	–
Congo	124.0	121.0	118.0	115.0	115.0	–
Egypt	2,185.0	2,185.0	2,185.0	2,086.0	2,086.0	–
Gabon	27.0	26.0	25.5	25.5	25.5	–
Libya	1,549.0	1,506.0	1,504.9	1,504.9	1,504.9	–
Nigeria	5,118.4	5,107.1	5,324.0	5,284.3	5,475.2	3.6
Others	656.0	647.2	637.8	636.8	636.8	–
<b>Asia and Pacific</b>	<b>16,493.0</b>	<b>16,562.2</b>	<b>16,107.6</b>	<b>16,244.2</b>	<b>16,386.4</b>	0.9
Australia	3,727.0	3,769.0	3,215.0	3,205.0	3,205.0	–
Bangladesh	474.0	436.0	412.0	385.0	385.0	–
Brunei	288.0	269.7	263.0	258.0	258.0	–
China	3,051.0	3,200.0	3,275.0	3,438.8	3,610.7	5.0
India	1,331.0	1,355.0	1,427.0	1,488.0	1,458.2	–2.0
Indonesia	2,917.0	2,875.4	2,839.1	2,775.1	2,775.1	–
Malaysia	2,389.0	2,611.0	2,676.0	2,740.0	2,740.0	–
Myanmar	496.0	297.0	290.0	282.0	282.0	–
Pakistan	762.0	749.0	736.0	723.0	723.0	–
Thailand	256.0	238.3	219.5	219.5	219.5	–
Vietnam	220.0	216.0	211.0	207.0	207.0	–
Others	582.0	545.8	544.0	522.8	522.8	–
<b>Total world</b>	<b>199,792.7</b>	<b>200,608.9</b>	<b>200,058.4</b>	<b>199,742.0</b>	<b>200,539.1</b>	0.4
<i>of which</i>						
OPEC	95,159.7	95,056.1	95,367.5	94,759.4	95,676.2	1.0
<i>OPEC percentage</i>	<i>47.6</i>	<i>47.4</i>	<i>47.7</i>	<i>47.4</i>	<i>47.7</i>	
OECD	20,150.0	20,639.1	19,250.5	19,088.7	18,970.5	–0.6
FSU	64,721.0	65,121.8	65,601.2	66,106.0	66,106.0	–

Notes: Figures as at year-end.

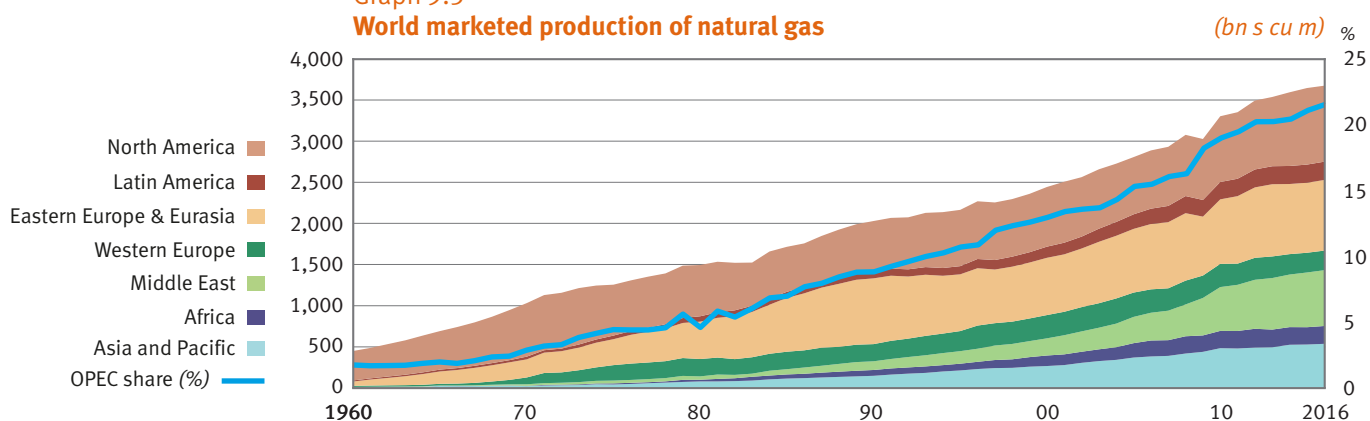
Graph 9.1  
World proven natural gas reserves



Graph 9.2  
OPEC Members' proven natural gas reserves



Graph 9.3  
World marketed production of natural gas



Graph 9.4  
OPEC Members' marketed production of natural gas

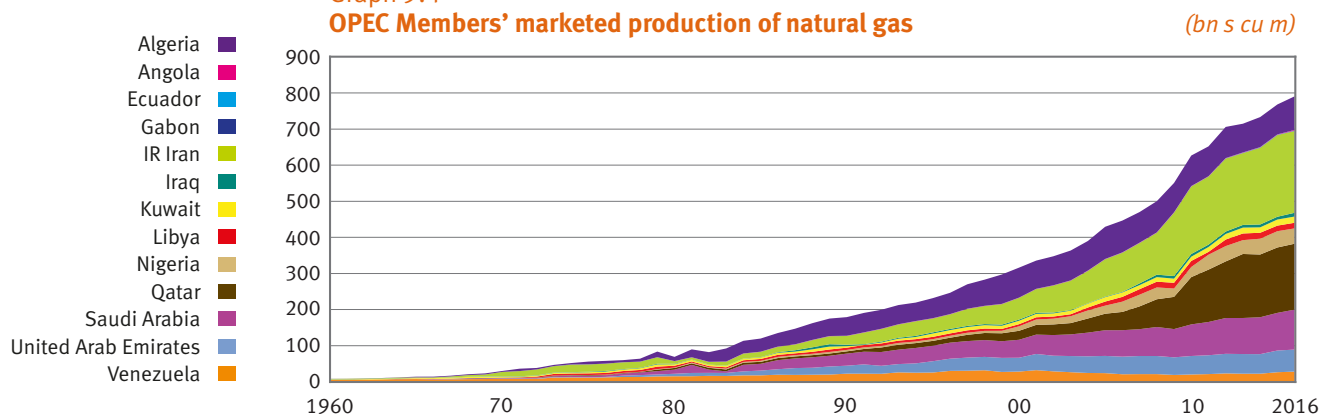




Table 9.2  
Yearly and cumulative marketed natural gas production in OPEC Members

(million s cu m)

Marketed natural gas production yearly

	1960	1970	1980	1990	2000	2010	2016
Algeria	235.0	2,599.0	11,647.0	51,600.0	83,119.0	84,615.0	93,152.0
Angola	–	40.0	260.0	540.0	570.0	733.0	1,919.0
Ecuador	10.0	10.0	30.0	100.0	140.0	330.0	530.0
Gabon	55.2	20.0	70.0	100.0	80.0	80.0	551.1
IR Iran	960.0	12,881.0	7,138.0	24,200.0	60,240.0	187,357.0	226,905.0
Iraq	604.0	780.0	1,281.0	3,980.0	3,150.0	7,510.8	10,416.4
Kuwait	943.0	2,037.0	4,071.0	4,190.0	9,600.0	11,733.0	17,291.0
Libya	–	294.0	5,170.0	6,200.0	5,880.0	16,814.0	15,570.5
Nigeria	–	111.0	1,070.0	4,010.0	12,460.0	28,099.0	42,562.4
Qatar	10.0	1,005.0	4,741.0	6,300.0	24,900.0	131,165.0	182,830.3
Saudi Arabia	–	1,230.0	11,431.0	33,520.0	49,810.0	87,660.0	110,860.0
United Arab Emirates	–	756.0	6,863.0	22,110.0	38,380.0	51,282.0	61,083.7
Venezuela	4,958.0	7,710.0	14,805.0	21,966.0	27,801.0	19,728.0	27,718.0
<b>OPEC</b>	<b>7,775.2</b>	<b>29,473.0</b>	<b>68,577.0</b>	<b>178,816.0</b>	<b>316,130.0</b>	<b>627,106.8</b>	<b>791,389.4</b>

Cumulative marketed natural gas production up to and including year

	1960	1970	1980	1990	2000	2010	2016
Algeria	600.0	15,663.0	89,443.0	472,787.0	1,102,956.0	1,941,218.0	2,449,574.6
Angola	–	40.0	844.0	4,684.0	10,354.0	17,147.0	23,007.6
Ecuador	10.0	48.0	355.0	1,095.0	2,175.0	4,526.0	7,403.9
Gabon	55.2	195.2	2,180.2	3,210.2	4,190.2	5,060.2	7,271.3
IR Iran	1,030.0	33,063.0	203,263.0	353,113.0	790,718.0	1,906,280.0	3,163,131.0
Iraq	600.0	6,991.0	19,128.0	43,668.0	72,138.0	109,021.8	155,804.3
Kuwait	1,040.0	22,483.0	59,123.0	109,793.0	179,932.0	290,934.0	385,522.0
Libya	–	294.0	43,981.0	93,091.0	155,921.0	269,950.0	361,972.4
Nigeria	–	861.0	6,387.0	35,998.0	95,883.0	335,691.0	589,548.1
Qatar	10.0	2,844.0	23,060.0	78,833.0	237,213.0	821,429.0	1,839,683.1
Saudi Arabia	–	8,588.0	58,961.0	275,956.0	708,196.0	1,410,617.0	2,019,927.0
United Arab Emirates	–	2,379.0	30,627.0	178,652.0	491,312.0	967,964.0	1,304,681.2
Venezuela	5,720.0	69,435.0	184,608.0	363,836.0	628,796.0	862,302.0	1,003,217.1
<b>OPEC</b>	<b>9,065.2</b>	<b>162,884.2</b>	<b>721,960.2</b>	<b>2,014,716.2</b>	<b>4,479,784.2</b>	<b>8,942,140.0</b>	<b>13,310,743.7</b>

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Table 9.3

## World marketed production of natural gas by country

(million s cu m)

	2012	2013	2014	2015	2016	% change 16/15
<b>North America</b>	<b>839,521.0</b>	<b>843,040.0</b>	<b>896,903.0</b>	<b>931,910.0</b>	<b>925,114.0</b>	<b>-0.7</b>
Canada	156,547.0	156,068.0	162,102.0	164,010.0	174,051.0	6.1
United States	682,974.0	686,972.0	734,801.0	767,900.0	751,063.0	-2.2
<b>Latin America</b>	<b>218,041.4</b>	<b>219,059.1</b>	<b>219,579.4</b>	<b>221,003.6</b>	<b>222,691.9</b>	<b>0.8</b>
Argentina	37,640.0	35,560.0	35,530.0	36,400.0	36,545.6	0.4
Bolivia	17,910.0	20,480.0	21,094.4	22,597.0	23,500.9	4.0
Brazil	16,976.4	19,029.2	20,353.3	20,410.5	20,618.5	1.0
Colombia	11,930.0	12,800.0	12,680.0	12,806.8	12,934.9	1.0
Ecuador	517.0	515.0	577.9	496.9	530.0	6.7
Mexico	53,713.0	52,423.0	50,510.0	45,984.0	41,227.0	-10.3
Peru	11,850.0	11,633.1	12,925.7	13,512.0	14,454.0	7.0
Trinidad & Tobago	42,609.0	42,846.9	42,082.0	40,875.0	43,374.0	6.1
Venezuela	22,726.0	21,819.8	21,878.0	26,004.4	27,718.0	6.6
Others	2,170.0	1,952.0	1,948.0	1,917.0	1,789.0	-6.7
<b>Eastern Europe and Eurasia</b>	<b>857,221.0</b>	<b>879,188.0</b>	<b>853,693.0</b>	<b>852,338.5</b>	<b>859,816.0</b>	<b>0.9</b>
Azerbaijan	17,236.0	17,851.0	18,633.0	19,365.0	18,773.0	-3.1
Hungary	2,462.0	2,001.0	1,854.0	1,758.0	1,841.0	4.7
Kazakhstan	19,490.0	19,650.0	20,150.0	21,157.5	22,003.8	4.0
Poland	6,193.0	6,206.0	6,081.0	6,081.0	5,794.0	-4.7
Romania	10,979.0	11,017.0	11,215.0	11,170.0	9,890.0	-11.5
Russia	656,286.0	671,546.0	642,997.0	637,386.0	642,242.0	0.8
Turkmenistan	66,000.0	72,000.0	74,160.0	80,162.0	81,765.2	2.0
Ukraine	18,890.0	20,160.0	19,510.0	19,000.0	19,271.0	1.4
Uzbekistan	58,730.0	58,080.0	58,500.0	55,700.0	57,700.0	3.6
Others	955.0	677.0	593.0	559.0	536.0	-4.1
<b>Western Europe</b>	<b>267,472.0</b>	<b>262,996.0</b>	<b>248,376.0</b>	<b>240,197.0</b>	<b>238,593.0</b>	<b>-0.7</b>
Austria	1,910.0	1,370.0	1,247.0	1,233.0	1,199.0	-2.8
Croatia	1,610.0	1,480.0	1,805.0	1,829.0	1,691.0	-7.5
Denmark	5,725.0	4,846.0	4,613.0	4,593.0	4,505.0	-1.9
France	508.0	323.0	15.0	21.0	34.0	61.9
Germany	12,299.0	11,886.0	10,191.0	8,392.0	7,606.0	-9.4
Ireland	373.0	343.0	151.0	132.0	2,998.0	2,171.2
Italy	8,605.0	7,734.0	7,147.0	6,773.0	5,783.0	-14.6
Netherlands	80,145.0	86,401.0	72,683.0	54,379.0	50,543.0	-7.1
Norway	114,055.0	109,040.0	111,014.0	120,589.0	120,193.0	-0.3
United Kingdom	40,989.0	38,360.0	38,410.0	41,201.0	43,022.0	4.4
Others	1,253.0	1,213.0	1,100.0	1,055.0	1,019.0	-3.4
<b>Middle East</b>	<b>596,744.7</b>	<b>627,323.1</b>	<b>640,299.7</b>	<b>666,252.5</b>	<b>679,380.5</b>	<b>2.0</b>
Bahrain	13,740.0	17,220.0	20,629.4	21,286.2	22,350.5	5.0
IR Iran	202,431.0	199,293.0	212,796.0	226,673.0	226,905.0	0.1
Iraq	6,675.1	7,444.9	7,927.2	7,685.4	10,416.4	35.5
Kuwait	15,515.0	16,311.2	15,028.8	16,909.0	17,291.0	2.3

Table 9.3

## World marketed production of natural gas by country

(million s cu m)

	2012	2013	2014	2015	2016	% change 16/15
<b>Middle East (cont'd)</b>						
Oman	31,583.0	32,620.0	30,897.0	31,823.9	32,778.6	3.0
Qatar	157,049.6	177,602.0	174,056.7	181,444.1	182,830.3	0.8
Saudi Arabia	99,330.0	100,030.0	102,380.0	104,450.0	110,860.0	6.1
Syrian Arab Republic	5,800.0	5,300.0	4,900.0	4,300.0	3,870.0	-10.0
United Arab Emirates	54,300.0	54,600.0	54,244.6	60,181.0	61,083.7	1.5
Others	10,321.0	16,902.0	17,440.0	11,500.0	10,995.0	-4.4
<b>Africa</b>	<b>228,883.0</b>	<b>215,572.8</b>	<b>214,723.9</b>	<b>210,642.1</b>	<b>216,958.7</b>	<b>3.0</b>
Algeria	86,454.0	79,647.3	83,295.6	83,040.7	93,152.0	12.2
Angola	760.0	925.0	732.2	772.5	1,919.0	148.4
Egypt	60,717.0	56,180.9	48,790.3	44,327.8	42,102.2	-5.0
Equatorial Guinea	6,370.0	6,550.0	6,160.0	6,200.0	6,212.4	0.2
Côte d'Ivoire	1,650.0	1,800.0	1,900.0	1,900.0	1,900.0	-
Gabon	110.0	380.0	550.0	550.0	551.1	0.2
Libya	18,118.0	18,462.6	16,523.3	15,493.0	15,570.5	0.5
Mozambique	4,890.0	5,280.0	5,600.0	5,712.0	5,826.2	2.0
Nigeria	42,571.0	38,411.0	43,841.6	45,148.1	42,562.4	-5.7
South Africa	2,400.0	2,400.0	2,140.0	2,003.0	1,962.9	-2.0
Tunisia	2,783.0	2,786.0	2,561.0	2,475.0	2,180.0	-11.9
Others	2,060.0	2,750.0	2,630.0	3,020.0	3,020.0	-
<b>Asia Pacific</b>	<b>486,202.5</b>	<b>489,914.3</b>	<b>520,545.9</b>	<b>523,553.4</b>	<b>531,916.4</b>	<b>1.6</b>
Australia	49,940.0	51,690.0	53,771.0	53,125.0	56,293.0	6.0
Bangladesh	22,030.0	22,800.0	23,800.0	25,259.6	25,512.2	1.0
Brunei	11,830.0	12,206.0	11,852.0	12,452.0	11,132.0	-10.6
China	106,429.0	111,640.0	128,481.0	133,279.0	136,628.0	2.5
India	41,700.0	35,120.0	34,574.1	32,693.2	31,138.5	-4.8
Indonesia	72,309.0	71,450.0	70,891.0	70,274.0	74,026.0	5.3
Japan	4,845.0	4,695.0	4,686.0	4,430.0	4,175.0	-5.8
Malaysia	62,000.0	64,000.0	65,421.0	63,433.0	64,428.0	1.6
Myanmar	11,970.0	13,541.0	18,724.0	19,004.0	18,528.9	-2.5
New Zealand	4,646.0	4,866.0	5,177.0	4,975.0	5,063.0	1.8
Pakistan	44,414.8	42,901.4	42,555.2	41,759.5	42,209.4	1.1
Philippines	2,750.0	3,496.0	3,950.0	3,482.0	3,951.0	13.5
Thailand	41,306.7	41,802.9	42,102.7	39,818.2	38,929.2	-2.2
Vietnam	8,320.0	8,580.0	8,990.0	9,079.9	9,297.8	2.4
Others	1,712.0	1,126.0	5,571.0	10,489.0	10,604.4	1.1
<b>Total world</b>	<b>3,494,085.6</b>	<b>3,537,093.3</b>	<b>3,594,120.8</b>	<b>3,645,897.1</b>	<b>3,674,470.6</b>	<b>0.8</b>
<i>of which</i>						
OPEC	706,556.7	715,441.7	733,831.9	768,848.0	791,389.4	2.9
<i>OPEC percentage</i>	<i>20.2</i>	<i>20.2</i>	<i>20.4</i>	<i>21.1</i>	<i>21.5</i>	
OECD	1,231,620.0	1,233,930.0	1,274,025.0	1,296,076.0	1,285,373.0	-0.8
FSU	836,762.0	859,397.0	834,040.0	832,860.5	841,845.0	1.1

Table 9.4

## World natural gas exports by country

(million s cu m)

	2012	2013	2014	2015	2016	% change 16/15
<b>North America</b>	<b>134,129.0</b>	<b>126,974.0</b>	<b>120,844.0</b>	<b>128,755.0</b>	<b>148,233.0</b>	<b>15.1</b>
Canada	88,290.0	82,449.0	77,968.0	78,253.0	82,691.0	5.7
United States	45,839.0	44,525.0	42,876.0	50,502.0	65,542.0	29.8
<b>Latin America</b>	<b>39,490.0</b>	<b>42,227.0</b>	<b>41,926.0</b>	<b>40,937.0</b>	<b>39,445.3</b>	<b>-3.6</b>
Argentina	100.0	87.0	70.0	80.0	80.0	-
Bolivia	14,720.0	17,110.0	17,802.0	17,597.0	17,614.6	0.1
Colombia	1,840.0	2,100.0	950.0	400.0	400.0	-
Mexico	10.0	30.0	30.0	30.0	24.0	-20.0
Trinidad & Tobago	17,730.0	17,720.0	17,410.0	17,861.0	16,308.0	-8.7
Others	5,090.0	5,180.0	5,664.0	4,969.0	5,018.7	1.0
<b>Eastern Europe and Eurasia</b>	<b>267,080.0</b>	<b>285,299.0</b>	<b>263,701.0</b>	<b>279,186.6</b>	<b>291,217.1</b>	<b>4.3</b>
Azerbaijan	6,100.0	7,009.0	8,066.0	8,140.0	7,894.0	-3.0
Kazakhstan	11,030.0	11,400.0	11,860.0	11,978.6	11,930.7	-0.4
Russia	203,940.0	210,820.0	183,175.0	198,338.0	210,001.0	5.9
Turkmenistan	35,810.0	41,270.0	45,850.0	46,300.0	47,226.0	2.0
Uzbekistan	10,200.0	13,500.0	13,500.0	13,230.0	12,965.4	-2.0
Others	0.0	1,300.0	1,250.0	1,200.0	1,200.0	-
<b>Western Europe</b>	<b>218,165.0</b>	<b>220,809.0</b>	<b>227,011.6</b>	<b>240,119.2</b>	<b>240,869.9</b>	<b>0.3</b>
Austria	3,629.0	4,034.0	3,630.6	3,634.2	3,634.2	-
Belgium	9,540.0	13,060.0	13,220.0	17,170.0	17,221.5	0.3
Denmark	2,983.0	2,236.0	2,085.0	2,191.0	2,130.0	-2.8
France	5,994.0	5,027.0	4,810.0	5,468.0	3,615.0	-33.9
Germany	12,240.0	13,890.0	20,100.0	26,360.0	26,887.2	2.0
Italy	324.0	226.0	237.0	220.0	212.0	-3.6
Netherlands	54,510.0	59,500.0	58,661.0	50,962.0	56,597.0	11.1
Norway	111,928.0	106,596.0	106,759.0	114,200.0	114,837.0	0.6
Spain	4,414.0	5,832.0	6,032.0	5,047.0	3,984.0	-21.1
United Kingdom	11,971.0	9,754.0	10,844.0	14,243.0	11,079.0	-22.2
Others	632.0	654.0	633.0	624.0	673.0	7.9
<b>Middle East</b>	<b>155,940.0</b>	<b>165,361.0</b>	<b>164,578.3</b>	<b>163,348.2</b>	<b>163,836.0</b>	<b>0.3</b>
IR Iran	9,152.0	9,307.0	8,360.0	8,541.0	8,567.0	0.3
Oman	10,870.0	11,280.0	11,270.0	9,830.0	10,130.0	3.1
Qatar	115,668.0	122,874.0	122,628.3	129,877.2	130,324.0	0.3
United Arab Emirates	13,420.0	12,590.0	13,520.0	13,200.0	13,200.0	-
Yemen	6,830.0	9,310.0	8,800.0	1,900.0	1,615.0	-15.0
<b>Africa</b>	<b>104,975.0</b>	<b>92,147.0</b>	<b>89,667.0</b>	<b>86,170.0</b>	<b>96,517.3</b>	<b>12.0</b>
Algeria	54,594.0	46,708.0	44,190.0	43,418.7	53,974.0	24.3
Angola	-	517.0	-	-	1,149.0	na
Egypt	7,570.0	6,056.0	5,147.6	2,573.8	2,773.8	7.8
Equatorial Guinea	4,720.0	5,090.0	4,790.0	5,010.0	5,010.0	-
Libya	6,225.0	5,513.0	4,961.7	4,664.0	4,664.0	-
Mozambique	3,600.0	3,720.0	3,800.0	3,800.0	3,800.0	-
Nigeria	28,266.0	24,543.0	26,777.7	26,703.5	25,146.5	-5.8
<b>Asia and Pacific</b>	<b>110,381.0</b>	<b>114,264.0</b>	<b>118,878.6</b>	<b>123,634.6</b>	<b>131,217.8</b>	<b>6.1</b>
Australia	27,410.0	29,550.0	32,390.0	34,283.0	42,853.8	25.0
Brunei	8,880.0	9,240.0	8,003.0	8,310.0	8,400.0	1.1
Indonesia	32,821.0	31,384.0	29,647.0	29,213.0	29,394.0	0.6
Malaysia	32,800.0	35,400.0	35,399.6	35,753.6	35,363.0	-1.1
Myanmar	8,470.0	8,690.0	13,439.0	16,075.0	15,207.0	-5.4
<b>Total world</b>	<b>1,030,160.0</b>	<b>1,047,081.0</b>	<b>1,026,606.5</b>	<b>1,062,150.7</b>	<b>1,111,336.4</b>	<b>4.6</b>
<i>of which</i>						
OPEC	227,325.0	222,052.0	220,437.6	226,404.4	237,024.5	4.7
<i>OPEC percentage</i>	<i>22.1</i>	<i>21.2</i>	<i>21.5</i>	<i>21.3</i>	<i>21.3</i>	
OECD	379,714.0	378,663.0	381,525.6	404,387.2	433,180.7	7.1
FSU	267,080.0	283,999.0	262,451.0	277,986.6	290,017.1	4.3

Table 9.5  
World natural gas imports by country

(million s cu m)

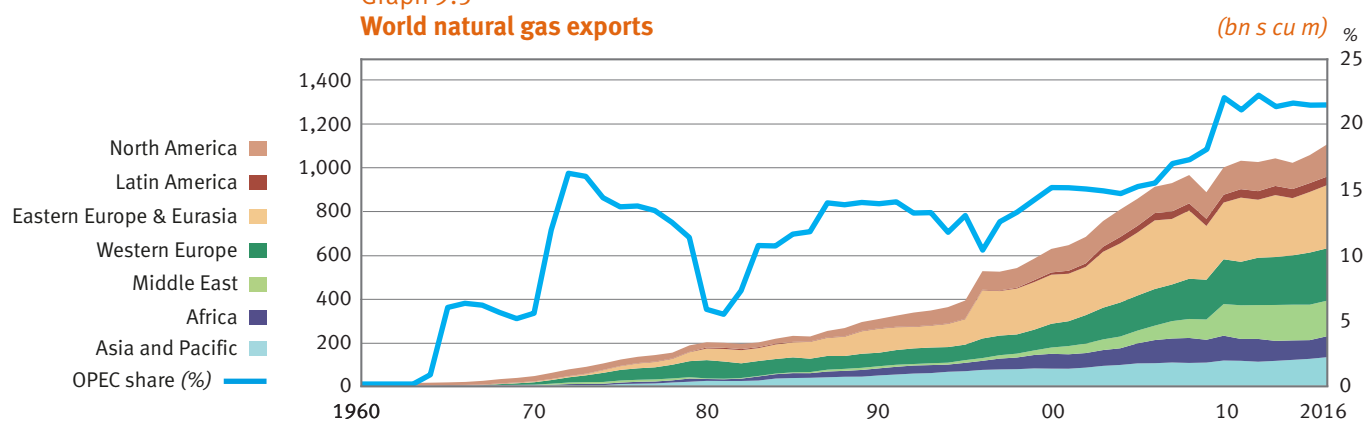
	2012	2013	2014	2015	2016	% change 16/15
<b>North America</b>	<b>118,033.0</b>	<b>108,349.0</b>	<b>98,218.0</b>	<b>96,592.0</b>	<b>105,702.0</b>	<b>9.4</b>
Canada	29,180.0	26,699.0	21,890.0	19,627.0	20,988.0	6.9
United States	88,853.0	81,650.0	76,328.0	76,965.0	84,714.0	10.1
<b>Latin America</b>	<b>52,664.0</b>	<b>54,987.7</b>	<b>55,985.0</b>	<b>57,687.0</b>	<b>60,663.0</b>	<b>5.2</b>
Argentina	8,700.0	11,200.0	11,312.0	10,660.0	10,649.3	-0.1
Brazil	13,730.0	16,770.0	17,480.0	19,960.0	19,560.8	-2.0
Chile	3,830.0	3,778.0	3,715.0	3,494.0	4,380.0	25.4
Mexico	21,827.0	18,529.0	19,698.0	20,393.0	24,519.0	20.2
Venezuela	1,877.0	1,820.7	950.0	400.0	—	nap
Others	2,700.0	2,890.0	2,830.0	2,780.0	1,553.8	-44.1
<b>Eastern Europe and Eurasia</b>	<b>137,130.0</b>	<b>130,121.0</b>	<b>116,404.9</b>	<b>106,858.9</b>	<b>105,100.9</b>	<b>-1.6</b>
Armenia	2,070.0	1,960.0	2,080.0	2,050.0	2,050.0	—
Belarus	20,252.0	20,260.0	20,052.0	18,790.0	18,640.0	-0.8
Bulgaria	2,370.0	2,590.0	2,600.0	285.0	278.7	-2.2
Czech Republic	10,220.0	9,970.0	7,950.0	8,200.0	8,610.0	5.0
Hungary	6,060.0	6,130.0	6,536.0	7,259.0	7,526.0	3.7
Kazakhstan	3,930.0	5,280.0	4,840.0	4,700.0	4,615.4	-1.8
Latvia	1,050.0	1,060.0	1,150.0	1,210.0	1,150.0	-5.0
Lithuania	3,110.0	2,530.0	2,640.0	2,620.0	2,627.9	0.3
Moldova	2,910.0	2,250.0	2,630.0	2,720.0	2,924.0	7.5
Poland	11,270.0	12,690.0	11,754.0	12,115.0	13,069.0	7.9
Romania	2,040.0	1,300.0	1,040.0	728.0	1,494.0	105.2
Russia	33,770.0	28,010.0	27,729.9	24,956.9	24,457.8	-2.0
Slovakia	5,030.0	5,080.0	3,740.0	4,527.0	4,477.0	-1.1
Tajikistan	188.0	150.0	150.0	120.0	120.0	—
Ukraine	30,890.0	28,023.0	19,133.0	14,185.0	10,602.0	-25.3
Others	1,970.0	2,838.0	2,380.0	2,393.0	2,459.1	2.8
<b>Western Europe</b>	<b>414,350.0</b>	<b>416,273.2</b>	<b>399,367.0</b>	<b>425,334.5</b>	<b>441,023.0</b>	<b>3.7</b>
Austria	7,810.0	6,390.0	7,800.0	6,000.0	8,226.0	37.1
Belgium	28,580.0	31,850.0	28,500.0	34,100.0	35,464.0	4.0
Bosnia & Herzegovina	240.0	240.0	240.0	240.0	240.0	—
Croatia	1,280.0	1,370.0	1,040.0	1,072.0	1,328.0	23.9
Finland	3,661.0	3,340.0	3,057.0	2,709.0	2,488.0	-8.2
France	44,940.0	47,990.0	45,134.0	44,711.0	46,444.0	3.9
Germany	90,530.0	96,200.0	92,550.0	103,040.0	109,222.4	6.0
Greece	4,340.0	3,700.0	2,928.0	3,161.0	3,319.1	5.0
Ireland	5,290.0	4,880.0	4,500.0	4,690.0	2,341.0	-50.1
Italy	67,802.0	61,953.0	55,758.0	61,200.0	65,285.0	6.7
Luxembourg	1,206.0	1,028.0	973.0	877.0	802.0	-8.6

Table 9.5  
World natural gas imports by country

(million s cu m)

	2012	2013	2014	2015	2016	% change 16/15
<b>Western Europe (cont'd)</b>						
Netherlands	15,390.0	15,560.0	15,900.0	25,000.0	26,250.0	5.0
Portugal	4,610.0	4,840.0	4,453.0	5,127.0	5,369.0	4.7
Serbia	2,240.0	2,195.2	1,900.0	1,814.5	1,814.5	—
Spain	36,754.0	35,399.0	36,383.0	32,391.0	32,405.0	—
Sweden	1,130.0	1,120.0	891.0	809.0	888.0	9.8
Switzerland	3,420.0	3,650.0	3,255.0	3,381.0	3,419.0	1.1
Turkey	44,300.0	43,710.0	49,262.0	48,427.0	46,332.0	-4.3
United Kingdom	49,100.0	48,944.0	43,405.0	45,062.0	47,906.0	6.3
Others	1,727.0	1,914.0	1,438.0	1,523.0	1,480.0	-2.8
<b>Middle East</b>	<b>38,595.7</b>	<b>41,510.2</b>	<b>35,643.0</b>	<b>44,269.7</b>	<b>45,425.5</b>	<b>2.6</b>
IR Iran	6,720.0	5,329.0	4,422.0	9,015.0	9,246.3	2.6
Jordan	586.8	867.2	221.0	2,210.0	2,210.0	—
Kuwait	688.0	3,517.0	3,025.0	3,852.0	4,311.0	11.9
Oman	1,950.0	1,950.0	1,970.0	1,987.7	1,973.8	-0.7
Syrian Arab Republic	350.0	250.0	125.0	25.0	25.0	—
United Arab Emirates	28,201.0	29,047.0	25,800.0	27,100.0	27,479.4	1.4
Others	100.0	550.0	80.0	80.0	180.0	125.0
<b>Africa</b>	<b>6,580.1</b>	<b>7,160.0</b>	<b>7,420.0</b>	<b>11,150.0</b>	<b>12,578.0</b>	<b>12.8</b>
Morocco	660.0	580.0	500.0	500.0	500.0	—
South Africa	3,600.0	3,720.0	3,456.0	3,749.0	3,942.0	5.1
Tunisia	1,890.0	2,260.0	2,864.0	2,711.0	2,986.0	10.1
Others	430.1	600.0	600.0	4,190.0	5,150.0	22.9
<b>Asia and Pacific</b>	<b>272,823.0</b>	<b>293,769.0</b>	<b>297,313.0</b>	<b>297,986.1</b>	<b>305,717.1</b>	<b>2.6</b>
China	39,700.0	51,800.0	55,944.0	59,169.1	64,494.3	9.0
India	17,920.0	17,380.0	13,709.0	17,074.0	21,455.0	25.7
Japan	122,243.0	122,489.0	127,521.0	122,534.0	120,073.0	-2.0
South Korea	48,120.0	52,980.0	49,086.0	43,428.0	44,001.0	1.3
Thailand	9,760.0	10,360.0	10,592.0	13,329.0	12,978.0	-2.6
Others	35,080.0	38,760.0	40,461.0	42,452.0	42,715.8	0.6
<b>Total world</b>	<b>1,040,175.8</b>	<b>1,052,170.1</b>	<b>1,010,350.9</b>	<b>1,039,878.2</b>	<b>1,076,209.4</b>	<b>3.5</b>
<i>of which</i>						
OPEC	37,486	39,714	34,197	40,367	41,037	1.7
<i>OPEC percentage</i>	<i>3.6</i>	<i>3.8</i>	<i>3.4</i>	<i>3.9</i>	<i>3.8</i>	
OECD	753,422	749,251	721,062	737,650	767,229	4.0
FSU	100,140	92,361	82,785	73,745	69,646	-5.6

Graph 9.5  
World natural gas exports



Graph 9.6  
World natural gas imports

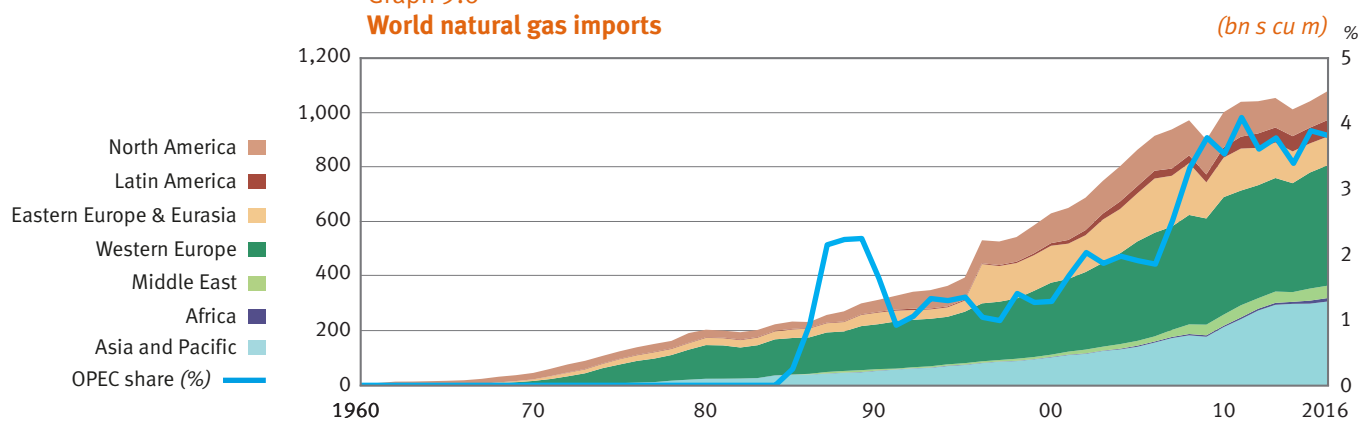




Table 9.6

## World natural gas demand by country

(million s cu m)

	2012	2013	2014	2015	2016	% change 16/15
<b>North America</b>	<b>823,542.4</b>	<b>844,598.8</b>	<b>860,514.0</b>	<b>882,342.0</b>	<b>893,130.0</b>	<b>1.2</b>
Canada	100,291.2	103,505.7	104,510.0	104,396.0	113,783.0	9.0
United States	723,251.2	741,093.2	756,004.0	777,946.0	779,347.0	0.2
<b>Latin America</b>	<b>219,061.1</b>	<b>223,969.3</b>	<b>239,276.3</b>	<b>238,411.0</b>	<b>237,227.8</b>	<b>-0.5</b>
Argentina	46,246.5	47,996.8	49,876.0	51,372.3	50,858.6	-1.0
Bolivia	3,190.0	3,370.0	3,850.0	3,340.0	3,380.1	1.2
Brazil	30,338.3	38,405.4	41,744.0	43,831.2	44,313.3	1.1
Colombia	10,090.0	10,700.0	11,700.0	11,510.0	11,820.8	2.7
Ecuador	517.0	515.0	577.9	496.9	530.0	6.7
Mexico	68,580.7	64,589.1	70,169.0	66,349.0	65,596.0	-1.1
Peru	6,610.9	5,900.8	7,350.0	7,570.5	8,100.4	7.0
Trinidad & Tobago	20,002.8	20,202.9	21,763.0	22,045.9	20,943.6	-5.0
Venezuela	24,606.5	23,643.3	23,720.4	24,076.2	23,715.0	-1.5
Others	8,878.3	8,645.9	8,526.0	7,819.0	7,970.0	1.9
<b>Eastern Europe and Eurasia</b>	<b>686,794.9</b>	<b>674,892.8</b>	<b>642,573.0</b>	<b>675,368.0</b>	<b>668,645.7</b>	<b>-1.0</b>
Azerbaijan	7,431.1	10,911.5	11,158.0	11,575.0	10,737.0	-7.2
Hungary	10,149.4	9,284.0	8,522.0	9,126.0	9,725.0	6.6
Kazakhstan	12,390.0	13,490.0	14,150.0	13,610.0	13,596.4	-0.1
Poland	18,116.6	18,231.6	17,835.0	18,196.0	19,104.0	5.0
Romania	13,477.9	12,599.0	11,584.0	11,229.0	11,480.0	2.2
Russia	444,943.0	441,772.5	409,257.9	446,718.0	437,863.0	-2.0
Turkmenistan	23,003.3	24,003.4	34,200.0	37,620.0	37,996.2	1.0
Ukraine	52,707.5	49,000.0	41,618.0	30,521.0	31,221.0	2.3
Uzbekistan	52,717.5	46,136.5	48,031.0	50,300.0	50,702.4	0.8
Others	51,858.7	49,464.2	46,217.1	46,473.0	46,220.7	-0.5
<b>Western Europe</b>	<b>469,990.5</b>	<b>465,405.8</b>	<b>420,608.4</b>	<b>436,451.0</b>	<b>464,691.0</b>	<b>6.5</b>
Austria	9,034.3	8,529.2	7,775.0	8,278.0	8,738.0	5.6
Croatia	2,890.4	2,900.4	2,440.0	2,574.0	2,735.0	6.3
Denmark	3,893.6	3,721.5	3,159.0	3,170.0	3,195.0	0.8
France	43,131.1	43,774.2	36,279.0	38,788.0	42,699.0	10.1
Germany	84,996.0	88,457.5	77,611.0	81,292.0	89,105.0	9.6
Ireland	4,735.7	4,770.7	4,417.0	4,397.0	5,333.0	21.3
Italy	74,925.6	70,078.9	61,912.0	67,524.0	70,914.0	5.0
Netherlands	46,057.5	46,365.6	40,605.0	40,136.0	42,032.0	4.7
Norway	4,340.0	5,150.0	5,970.0	6,428.0	5,883.0	-8.5
United Kingdom	77,940.0	77,454.0	70,809.0	72,192.0	81,550.0	13.0
Others	118,046.3	114,203.9	109,631.4	111,672.0	112,507.0	0.7
<b>Middle East</b>	<b>423,475.1</b>	<b>440,351.3</b>	<b>462,816.2</b>	<b>481,801.5</b>	<b>489,921.0</b>	<b>1.7</b>
Bahrain	13,301.9	15,702.2	16,010.0	16,186.1	16,299.4	0.7
IR Iran	157,291.3	157,337.3	174,600.0	184,900.0	188,598.0	2.0
Iraq	6,675.1	5,991.9	6,839.2	6,868.3	9,101.2	32.5
Kuwait	16,205.3	16,884.4	18,490.0	20,761.0	21,602.0	4.1

Table 9.6  
World natural gas demand by country

(million s cu m)

	2012	2013	2014	2015	2016	% change 16/15
<b>Middle East (cont'd)</b>						
Oman	22,606.2	21,923.1	22,654.0	23,356.3	23,211.5	-0.6
Qatar	32,453.6	41,120.0	40,500.0	38,400.0	38,592.0	0.5
Saudi Arabia	99,344.1	100,030.0	102,380.0	104,450.0	106,852.4	2.3
Syrian Arab Republic	6,150.9	5,650.8	4,900.0	4,300.0	4,000.0	-7.0
United Arab Emirates	65,329.2	66,699.4	66,500.0	72,700.0	71,798.5	-1.2
Others	4,117.6	9,012.1	9,943.0	9,879.8	9,866.1	-0.1
<b>Africa</b>	<b>125,841.1</b>	<b>130,824.7</b>	<b>128,587.5</b>	<b>130,844.4</b>	<b>134,568.8</b>	<b>2.8</b>
Algeria	36,295.1	36,655.2	37,497.8	39,018.5	39,546.0	1.4
Angola	760.0	925.0	732.2	770.0	770.0	—
Egypt	53,147.5	52,727.5	48,080.0	47,434.0	51,082.0	7.7
Equatorial Guinea	1,580.0	1,460.0	1,370.0	1,190.0	1,180.0	-0.8
Cote d'Ivoire	1,500.0	1,650.0	1,800.0	1,900.0	1,900.0	—
Gabon	110.0	380.0	550.0	550.0	551.1	0.2
Libya	5,730.8	6,487.9	5,940.0	5,934.1	5,892.5	-0.7
Mozambique	97.0	191.0	191.0	191.0	191.0	—
Nigeria	14,307.0	15,693.2	18,370.4	18,444.6	18,167.9	-1.5
South Africa	4,941.7	4,889.7	4,210.0	4,797.0	4,686.0	-2.3
Tunisia	3,760.5	5,318.0	5,423.0	5,191.0	5,178.0	-0.3
Others	3,611.3	4,447.2	4,423.0	5,424.2	5,424.2	—
<b>Asia Pacific</b>	<b>639,699.6</b>	<b>658,909.2</b>	<b>681,072.4</b>	<b>687,323.5</b>	<b>720,257.3</b>	<b>4.8</b>
Australia	23,541.0	23,073.0	27,663.0	26,121.0	25,337.4	-3.0
Bangladesh	22,033.1	22,863.2	23,800.0	26,800.0	27,068.0	1.0
Brunei	2,950.4	2,970.4	3,888.0	4,033.0	3,812.0	-5.5
China	143,696.3	163,130.1	180,461.6	185,875.4	209,008.0	12.4
India	58,908.3	51,607.3	50,607.2	51,229.0	52,448.0	2.4
Indonesia	39,020.0	42,180.0	41,760.0	46,075.0	50,060.0	8.6
Japan	126,647.9	127,226.0	124,158.0	122,745.0	124,644.0	1.5
Malaysia	31,610.0	32,810.0	35,180.0	31,180.0	31,211.2	0.1
Myanmar	3,530.5	3,048.0	3,540.0	3,450.0	3,400.0	-1.4
New Zealand	4,641.7	4,718.7	5,251.0	5,021.0	5,056.0	0.7
Pakistan	41,460.0	39,400.0	39,070.0	40,750.0	41,190.1	1.1
South Korea	50,791.2	53,162.5	47,587.0	42,960.0	45,873.0	6.8
Thailand	51,126.9	52,274.3	52,698.1	52,863.5	50,675.0	-4.1
Vietnam	8,401.2	8,801.2	11,013.0	11,165.0	11,276.6	1.0
Others	31,341.0	31,644.4	34,395.6	37,055.6	39,198.0	5.8
<b>Total world</b>	<b>3,388,404.7</b>	<b>3,438,951.9</b>	<b>3,435,447.9</b>	<b>3,532,541.3</b>	<b>3,608,441.6</b>	<b>2.1</b>
<i>of which</i>						
OPEC	459,625.0	472,362.7	496,698.0	517,369.5	525,716.6	1.6
<i>OPEC percentage</i>	<i>13.6</i>	<i>13.7</i>	<i>14.5</i>	<i>14.6</i>	<i>14.6</i>	
OECD	1,611,992.1	1,631,532.9	1,601,883.5	1,629,688.0	1,674,302.4	2.7
FSU	627,616.5	616,806.7	589,984.9	620,831.0	611,439.7	-1.5

Table 9.7

**LNG carrier fleet in OPEC Members**

(1,000 cu m)

	2012		2013		2014		2015		2016	
	no	capacity	no	capacity	no	capacity	no	capacity	no	capacity
Algeria	9	1,057	9	1,073	9	1,073	9	1,073	9	1,104
Angola	3	263	3	263	3	263	3	270	3	270
Ecuador	–	–	–	–	–	–	–	–	–	–
Gabon	–	–	–	–	–	–	–	–	–	–
IR Iran	–	–	–	–	–	–	–	–	–	–
Iraq	–	–	–	–	–	–	–	–	–	–
Kuwait	–	–	–	–	–	–	–	–	–	–
Libya	–	–	–	–	–	–	–	–	–	–
Nigeria	24	3,346	24	3,346	13	1,738	11	1,680	13	1,913
Qatar	29	5,610	29	5,610	29	5,610	29	5,610	29	5,610
Saudi Arabia	–	–	–	–	–	–	–	–	–	–
United Arab Emirates	8	1,096	8	1,096	8	1,096	8	1,096	8	1,096
Venezuela	–	–	–	–	–	–	–	–	–	–
<b>OPEC</b>	<b>73</b>	<b>11,372</b>	<b>73</b>	<b>11,388</b>	<b>62</b>	<b>9,780</b>	<b>60</b>	<b>9,729</b>	<b>62</b>	<b>9,993</b>
Total world	373	53,148	372	53,219	386	55,347	415	60,266	443	64,573
<i>OPEC percentage</i>		<i>21.4</i>		<i>21.4</i>		<i>17.7</i>		<i>16.1</i>		<i>15.5</i>

**Notes:**

Figures as at year-end.

Table 9.8

**World LNG carrier fleet by size**

(1,000 cu m)

	2012		2013		2014		2015		2016	
	no	capacity	no	capacity	no	capacity	no	capacity	no	capacity
up to 19,999	19	183	20	199	23	208	23	208	23	208
20,000–39,999	3	94	3	94	1	23	1	23	5	137
40,000–59,999	3	122	–	–	–	–	–	–	–	–
60,000–99,999	14	1,070	14	1,070	13	982	11	839	9	684
100,000 and over	334	51,679	335	51,856	349	54,134	380	59,196	406	63,544
<b>Total world</b>	<b>373</b>	<b>53,148</b>	<b>372</b>	<b>53,219</b>	<b>386</b>	<b>55,347</b>	<b>415</b>	<b>60,266</b>	<b>443</b>	<b>64,573</b>

**Notes:**

Figures as at year-end.

Table 9.9  
Main gas pipelines in OPEC Members, 2016

		Length (miles)	Diameter (inches)
<b>Algeria</b>			
Alrar/Hassi R'Mel (3)	Sonatrach	2 x 597, 330	2 x 42, 48
Hassi R'Mel/Skikda – El Kala	Sonatrach	433	48
Hassi R'Mel/Skikda (2)	Sonatrach	2 x 357	2 x 42
Hassi R'Mel/Oued Safsaf	Sonatrach	–	48
Hassi R'Mel/El Aricha	Sonatrach	324	48
Hassi R'Mel/Arzew – Beni Saf (2)	Sonatrach	272, 321	42, 48
Hassi R'Mel/Arzew (4)	Sonatrach	315, 316, 2 x 318	2 x 40, 24/22, 42
<b>Angola</b>			
Segmetnt A/NB-S WYE	Chevron	20	20
Segment B/NB-S WYE	Chevron	39	22
TL/NB-S WYE	Chevron	19	14
AOKA-PLTG58306/NB-S WYE	Esso	62	18
EL-2/NB-S WYE	Total	42	16
FG451/NB-S WYE	Total	20	12
PLEM 3 A/PLEM 2A	Total	27	24
PLEM 2A/Tie in Point in 20m WD	Total	45	24
Linha de Transporte de Gas/Tie in Point in 20m WD	BP	44	12
<b>Ecuador</b>			
Amistad Platform (Offshore)/Bajo Alto	Petroamazonas EP	44	13
<b>Gabon</b>			
–	–	–	–
<b>IR Iran</b>			
Asaluyeh/Lushan	NIGC	734	33
Asaluyeh/Aghajari	NIGC	313	56
Asaluyeh/Bid Boland	NIGC	306	56
Asaluyeh/Iranshahr	NIGC	560	56
Asaluyeh/Naeen	NIGC	489	56
Asaluyeh/Saveh	NIGC	712	56
Bid Boland/Astara	NIGC	685	42/40
Kangan/Qazvin	NIGC	646	56
Kangan/Pataveh	NIGC	262	56
Saveh/Miandoab	NIGC	292	40, 48
Tehran/Dasht-e-Shad	NIGC	327	42, 48

Table 9.9  
Main gas pipelines in OPEC Members, 2016

Connection from/to	Owner or operator	Length (miles)	Diameter (inches)
<b>Iraq</b>			
Branch from Trans-Iraq dry gas pipeline/ Hilla-2 PWR St	OPC	25	24
Al-Ahdeb/Al-Zubaydia PWR St	OPC	73	16
Baiji/Al-Mashriq	OPC	131	18
Baiji/Al-Kaem	OPC	268	16
Khor Al-Zubair gas distribution station/ Hartha PWR St	OPC	48	24
Kirkuk/Baiji	OPC	90	24
Kirkuk/North Oil	OPC	21	18
Kirkuk/Taji	OPC	272	16
Mishraq cross road/Mousil PWR St	OPC	38	12
North Rumaila/Khor Al-Zubair gas dis station	OPC	54	42
Rumaila/Nasiriyaha PWR St	OPC	134	24
Strategic pipeline/Al-Najaf PWR St	OPC	23	16
Strategic pipeline/Hilla PWR St	OPC	45	16
Strategic pipeline/Kabesa cement	OPC	24	10
Taji/South Baghdad PWR St	OPC	35	18
Trans-Iraqi dry gas pipeline/Daura PWR St	OPC	29	18
Trans-Iraqi dry gas pipeline/Najaf PWR St	OPC	74	24
Trans-Iraqi dry gas pipeline/Dewania	OPC	50	24
<b>Kuwait</b>			
Khafji offshore/Khafji onshore (2)	KJO	68	12, 42
Wafa/KOC booster station <sup>2</sup>	WJO	38	18
<b>Libya</b>			
Brega/Al Khums	Sirte Oil	399.9	34
Mellitah/Gela (Italy)	Green Stream	335	32
Wafa/Mellitah (2)	Mellitha Oil & Gas	2 x 326	16, 32
Brega/Benghazi	Sirte Oil	152.52	34
Intisar/Zueitina	Zueitina	136.4	20
Intisar/Brega <sup>1</sup>	Zueitina	129	42
Nasser/Brega	Sirte Oil	107	36
Bu Attifel/Intisar (2)	Mellitha Oil & Gas, Eni Oil	2 x 82	34, 10
Tripoli/Mellitah <sup>1</sup>	Sirte Oil	71	34
Faregh/Intisar	Waha	68	24
Waha/Nasser	Waha	68	24
Al Khums/Tripoli <sup>1</sup>	Sirte Oil	68	34
Bahr es Salam/Mellitah (2)	Mellitha Oil & Gas	2 x 68	10, 36
Nasser/KM-81.5	Sirte Oil	57	30

Table 9.9  
Main gas pipelines in OPEC Members, 2016

Connection from/to	Owner or operator	Length (miles)	Diameter (inches)
<b>Libya (cont'd)</b>			
KM-91.5/Brega (2)	Sirte Oil	2 x 57	16, 36
Raguba/KM-110	Sirte Oil	55	20
KM-81.5/Brega	Sirte Oil	51	30
Jakhira/Intisar (2)	Wintershall	2 x 50	8, 20
Intisar/Sahl	Sirte Oil	50	30
Sahl/KM-81.5	Sirte Oil	30	30
Attahaddy/KM-91.5 (2)	Sirte Oil	2 x 16	12, 30
Bouri offshore/Bahr Es Salam (2)	Mellitha Oil & Gas	2 x 12	4, 10
<b>Nigeria</b>			
Ajaokuta/Obajana	Nigerian Gas Company	56	18
Aladja pipeline system/Aladja	Nigerian Gas Company	65	6, 8, 14, 16
Alagbado/Ewekoro (WAPCO)	Nigerian Gas Company	17	6
Alagbado/Ota-Agbara distr (SNG)	Nigerian Gas Company	25	24
Alagbado/Ota-Agbara distr (SNG)	Nigerian Gas Company	25	24
Alakiri/Ikot-Abasi (ALSCON)	Nigerian Gas Company	73	24
Escravos/WGTP	Nigerian Gas Company	36	36
Ewekoro node/Abeokuta (GDZ)	Nigerian Gas Company	20	18
Ikpe Anang/EHGC (UNICEM)	Nigerian Gas Company	67	24
Imo River/Aba (SPDC)	Nigerian Gas Company	20	12
Int scrapper station/Ikot-Abasi (ALSCON)	Nigerian Gas Company	23	24
Kew Metal/Ogijo	Nigerian Gas Company	63	6
KP 331/Itoki	Nigerian Gas Company	25	24
Oben/Ajaokuta	Nigerian Gas Company	123	24
Oben/Geregu (PHCN)	Nigerian Gas Company	123	20/24
Oben/Sapele (PHCN)	Nigerian Gas Company	22	18
Obiafu gas plant (GTS-1)/Ubeta Node (GTS-1)	Nigerian LNG Ltd	18	24
PS 4 (Itoki)/Ibese	Nigerian Gas Company	21	18
Rumuji Node (GTS-1)/NLNG Bonny	Nigerian LNG Ltd	53	36
Soku Gas Plant (GTS-1)/Rumuji Node (GTS-1)	Nigerian LNG Ltd	25	28
Ubeta Node (GTS-1)/Rumuji Node (GTS-1)	Nigerian LNG Ltd	21	28
Utorogu/Ughelli (PHCN)	Nigerian Gas Company	22	1
Warri/Egbin node (PS4)	Nigerian Gas Company	214	30
WGTP/WRPC	Nigerian Gas Company	36	36

Table 9.9  
Main gas pipelines in OPEC Members, 2016

Connection from/to	Owner or operator	Length (miles)	Diameter (inches)
<b>Qatar</b>			
BRZ-WHPs/Ras Laffan landfall	BRZ	84	32
DOL WHPs /Ras Laffan landfall	Dolphin/Del	82	36
NF B-PU/Ras Laffan landfall	Qatar Gas	78	32
PEARL-1/Ras Laffan landfall	Shell	58	30
PS-2 Offshore/PS-1 Offshore	QP	20	6
PS-3 Offshore/PS-1 Offshore	QP	37	10
PS-4/Ras Laffan landfall (2)	QP	2 x 77	12, 34
Qatargas WHPs/Ras Laffan landfall (2)	Qatar Gas	73, 91	38, 34
Ras Laffan/Mesaieed	QP	135	20
Ras Laffan/NFGP (2)	QP	2x137	12, 34
Ras Laffan/UAE	Dolphin /DEL	363	48
Ras Laffan: Station V/Station S (2)	QP	124	36
Ras Laffan: Station V/Station T3	QP	87	36
Rasgas WHPs/Ras Laffan landfall	Ras Gas	98	38
RG-A/Ras Laffan landfall	Ras Gas	90	32
<b>Saudi Arabia</b>			
Abqaiq/Yanbu	Saudi Aramco	741	48
UBTG-1/Berri (2)	Saudi Aramco	2 x 155	56, 36/38/40/42
UBTG-1/AY-1 KP 916	Saudi Aramco	152	56
UBTG-1/Ju'aymah	Saudi Aramco	127	28/30/38/40
Safaniya/Ju'aymah	Saudi Aramco	123	40
AY-1 KP 943/Riyadh	Saudi Aramco	95	48
Tanajib/Berri	Saudi Aramco	90	30
Abqaiq/Berri	Saudi Aramco	85	24/36
Haradh/Uthmaniya (2)	Saudi Aramco	77, 87	24/ 32, 48
UA-1/Uthmaniya	Saudi Aramco	62	24/32
Hawiyah/UBTG-1	Saudi Aramco	35	56
Ju'aymah/Jubail	Saudi Aramco	35	30/38/40
Abqaiq/Shedgum	Saudi Aramco	33	42
Waqr/Haradh	Saudi Aramco	31	30
Hawiyah/ Uthmaniyah	Saudi Aramco	29	32
Qatif North/Berri	Saudi Aramco	28	32
Tinat/Haradh	Saudi Aramco	27	20
Haradh/Hawiyah (3)	Saudi Aramco	3 x 27	30
Aindar/Shedgum	Saudi Aramco	21	12
Depco/Abqaiq	Saudi Aramco	20	40

Table 9.9  
Main gas pipelines in OPEC Members, 2016

Connection from/to	Owner or operator	Length (miles)	Diameter (inches)
<b>United Arab Emirates</b>			
Umm Shaif Field/Das Island	ADMA OPCO	22	46
TABK/Umm Shaif field	ADMA OPCO/TABK	26.7	30
ABK/USCC	ABK	26.4	30
Mubarratz field/Mubarratz terminal	ADOC	21.9	14
Taweelah/Fujirah	Dolphin	151.6	48
Al Ain/Fujirah	Dolphin	108.1	24
<b>Venezuela</b>			
Anaco/Barquisimeto	PDVSA	1,535	8, 10, 12, 16, 20, 26, 30, 36
Anaco/Puerto La Cruz, Margarita	PDVSA	480	12, 16, 20, 26, 36
Anaco/Puerto Ordaz	PDVSA	484	16, 20, 26, 36
Compressor plant Orocuai/Plant Jusepin	PDVSA	15.1	16
ICO Pipeline/TyD Gas Metano–PDVSA Gas	PDVSA	164	30/36
Muscar Operations Center/Soto Valves Estacion (ANACO)	PDVSA	71.5	26
Quiriquire/Jusepin	PDVSA	32/32	20
San Genaro de Boconoito/Obispo	PDVSA	27	12
Santa Barbara/Aguasay 5A-Plant	PDVSA	40.73	36
Sistema ULE–Amuay/TyD Gas Metano–PDVSA Gas	PDVSA	222	16/20
Trans-Caribbean Pipeline/TyD Gas Metano–PDVSA Gas	PDVSA	125.71	26







## General notes

## Definitions

**Barrels per calendar day (b/cd):** the total number of barrels processed in a refinery within 24 hours, reflecting all operational limitations (eg routine inspections, maintenance, repairs etc).

**Barrels per stream day (b/sd):** the number of barrels of input that a refining facility can process within 24 hours, operating at full capacity under optimal crude and product slate conditions.

**Completion:** the installation of permanent equipment for the production of oil or gas.

**Composite barrel:** a consumption weighted average of retail prices (including taxes) of the main groups of refined petroleum products.

**Crude oil:** a mixture of hydrocarbons that exists in a liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. For statistical purposes, volumes reported as crude oil include:

- liquids technically defined as crude oil;
- small amounts of hydrocarbons that exist in the gaseous phase in natural underground reservoirs, but which are liquid at atmospheric pressure after being recovered from oil well (casing head) gas in lease separators;
- small amounts of non-hydrocarbons produced with the oil;
- very heavy and extra-heavy crude oils with viscosity less than 10,000 mPa-s (centipoises) at original reservoir conditions.

**Distillates:** middle distillate type of hydrocarbons; includes products similar to number one and number two heating oils and diesel fuels. These products are used for space heating, diesel engine fuel and electrical power generation.

**Dry hole:** a well found to be incapable of producing either oil or gas in sufficient quantities to justify completion as an oil or gas well.

**Exports of petroleum products:** excludes international air and marine bunkers.

**Gasoline:** a mixture of relatively volatile hydrocarbons, with or without small quantities of additives, that have been blended to form a fuel suitable for use in internal combustion engines; includes gasoline used in aviation.

**Geneva I agreement:** agreement of January 1972 between some OPEC Member Countries and the major international oil companies, which had the effect of establishing an index for quarterly adjustments of posted crude oil prices on the basis of the arithmetic average of the deviations of the exchange rates of nine major currencies against the US dollar. This was modified to an import-weighted index in 1978, accounting for exchange rates and inflation rate. The present 'modified Geneva I + US dollar' currency basket includes the US dollar, the Euro, the Japanese yen, the UK pound and the Swiss franc.

**Kerosene:** medium hydrocarbon distillates in the 150° to 280° C distillation range and used as a heating fuel as well as for certain types of internal combustion engines; includes jet fuel, which is a fuel of naphtha or of kerosene type, suitable for commercial or military purposes in aircraft turbine engines.

**Natural gas liquids (NGLs):** those reservoir gases liquefied at the surface in lease separators, field facilities or gas processing plants. NGLs consist of field condensates and natural gas plant products such as ethane, pentane, propane, butane and natural gasoline.

**Natural gas:** a mixture of hydrocarbon compounds and small quantities of various non-hydrocarbons existing in the gaseous phase or in solution with oil in natural underground reservoirs at reservoir conditions. The natural gas volumes refer to Standard Conditions of 60° F, 14.73 psia (15.6° C, 760 mm/Hg).

**Gross production:** the total flow of natural gas from oil and gas reservoirs of associated-dissolved and non-associated gas.

**Marketed production:** corresponds to gross production, minus the volumes of gas flared or re-injected into fields, minus the shrinkage.

**Re-injection:** the total volume of natural gas produced from oil and gas completions, processed through gas-processing plants and field facilities, and used for gas lift, gas injection and cycling operations.

**Shrinkage:** volume shrinkage due to purification and/or extraction of natural gas liquids, gas used as input to GTL plants, lease separators and plant own consumption and any other losses caused by spillage, evaporation, etc.

**Non-conventional oil:** includes synthetic crude oil from tar sands, oil shale, etc, liquids derived from coal liquefaction (CTL) and gas liquefaction (GTL), hydrogen and emulsified oils (eg Orimulsion), non-hydrocarbon compounds added to or blended with a product to modify fuel properties (octane, cetane, cold properties, etc) of substances like alcohols (methanol, ethanol), ethers (such as MTBE (methyl tertiary butyl ether), ETBE (ethyl tertiary butyl ether), TAME (tertiary amyl methyl ether) or esters (eg rapeseed or dimethylester, etc) and chemical compounds such as TML (tetramethyl lead) or TEL (tetraethyl lead) and detergents.

**Oil demand:** inland delivery, including refinery fuels and losses, as well as products from gas plants, including international air and marine bunkers as well as direct crude burning.

**Oil or gas well:** a well completed for the production of oil or gas from one or more zones or reservoirs.

**Oil supply:** consists of crude oil natural gas liquids and non-conventional oil production.

**OPEC Basket:** the OPEC Reference Basket (ORB) price was introduced on January 1, 1987. Up to June 15, 2005, it was the arithmetic average of seven selected crudes. These were: Saharan Blend (Algeria); Minas (Indonesia); Bonny Light (Nigeria); Arab Light (Saudi Arabia); Dubai (United Arab Emirates); Tia Juana Light (Venezuela); and Isthmus (Mexico). Mexico is not a Member of OPEC. As of June 16, 2005, the ORB is calculated as a production-weighted average of the OPEC Basket of crudes. These are: Saharan Blend (Algeria); Girassol (Angola — as of January 2007); Oriente (Ecuador — as of October 19, 2007); Rabi Light (Gabon, as of July 1, 2016), Iran Heavy (IR Iran); Basrah Light (Iraq); Kuwait Export (Kuwait); Ess Sider (Libya); Bonny Light (Nigeria); Qatar Marine (Qatar); Arab Light (Saudi Arabia); Murban (United Arab Emirates); and Merey (Venezuela).

**Output of petroleum products:** the total amount of petroleum products produced from refinery input in a given period, excluding refinery fuels.

**Petroleum products:** products obtained from the processing of crude oil, unfinished oils, NGLs and other hydrocarbon compounds. These include aviation gasoline, motor gasoline, naphtha, kerosene, jet fuel, distillate fuel oil, residual fuel oil, liquefied petroleum gas, lubricants, paraffin wax, petroleum coke, asphalt and other products.

**Proven crude oil reserves:** the estimated quantities of all liquids statistically defined as crude oil. They consist of those quantities of crude oil 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 defined economic conditions, operating methods and government regulations (*source: SPE — Petroleum Resources Management System*).

**Proven natural gas reserves:** are the estimated quantities of all hydrocarbons statistically defined as natural gas. They consist of those quantities of natural gas (associated and non-associated) 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 defined economic conditions, operation methods and government regulations (*source: SPE — Petroleum Resources Management System*).

**Refinery capacity (charge):** the input (feed) capacity of the refinery processing facilities.

**Refinery capacity (operable):** the maximum amount of input to atmospheric distillation units that can be processed in an average 24-hour period.

**Refinery throughput:** oil input to atmospheric distillation unit.

**Residual fuel oil:** fuels obtained as liquid still bottoms from the distillation of crude used alone or in blends with heavy liquids from other refinery process operations. These are used for the generation of electric power, space heating, vessel bunkering and various industrial purposes.

**Rig:** a derrick complete with engine-house and other equipment necessary for drilling oil and gas wells.

**Well (exploratory and development):** a hole drilled for the purpose of finding or producing crude oil or natural gas, or providing services related to the production of crude oil and natural gas.

## Country groupings

(OPEC Member Countries are shown in bold.)

**North America:** Canada, Greenland, St Pierre and Miquelon, United States.

**Latin America:** Antigua, Argentina, Bahamas, Barbados, Belize, Bermuda, Bolivia, Brazil, British Virgin Islands, Cayman Islands, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, **Ecuador**, El Salvador, French Guiana, Grenada, Guadeloupe, Guatemala, Guyana, Haiti, Honduras, Jamaica, Martinique, Mexico, Montserrat, Nicaragua, Panama (including Panama Canal Zone), Paraguay, Peru, Puerto Rico, St Kitts-Nevis-Anguilla, St Lucia, St Vincent, Suriname, Trinidad & Tobago, Turks and Caicos Islands, United States Virgin Islands, Uruguay, **Venezuela** and Other Latin America.

**Eastern Europe and Eurasia:** Albania, Armenia, Azerbaijan, Belarus, Bulgaria, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Poland, Romania, Russia, Slovakia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

**Western Europe:** Austria, Belgium, Bosnia and Herzegovina, Cyprus, Croatia, Denmark (including Faroe Islands), Finland, France (including Andorra and Monaco), Germany, Gibraltar, Greece, Iceland, Ireland, Italy (including San Marino and the Holy See), Luxembourg, Malta, Montenegro, Netherlands, Norway (including Svalbard and Jan Mayen Islands), Portugal, Serbia, Slovenia, Spain (including Canary Islands), Sweden, Switzerland (including Liechtenstein), Former Yugoslav Republic of Macedonia, Turkey, United Kingdom and Other Western Europe.

**Middle East:** Bahrain, **Islamic Republic of Iran**, **Iraq**, Jordan, **Kuwait**, Lebanon, Oman, **Qatar**, **Saudi Arabia**, Syrian Arab Republic, **United Arab Emirates** (Abu Dhabi, Ajman, Dubai, Fujairah, Ras al-Khaimah, Sharjah, Umm al-Qaiwain), Yemen and Other Middle East.

**Africa:** **Algeria**, **Angola**, Benin, Botswana, British Indian Ocean Territory, Burkina Faso, Burundi, Cameroon (United Republic of), Cape Verde, Central African Republic, Chad, Comoros, Congo (Republic of the), Congo (Democratic Republic of the), Djibouti, Egypt, Equatorial Guinea, Eritrea, Ethiopia, **Gabon**, Gambia (The), Ghana, Guinea, Guinea-Bissau, Côte d'Ivoire, Kenya, Lesotho, Liberia, **Libya**, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, **Nigeria**, Reunion, Rwanda, St Helena, São Tomé and Príncipe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, Sudans (including South Sudan and Sudan), Swaziland, Tanzania, Togo, Tunisia, Uganda, Western Sahara, Zambia and Zimbabwe.

**Asia and Pacific:** Afghanistan, American Samoa, Antarctica, Australia, Bangladesh, Bhutan, Brunei, Cambodia, Canton and Enderbury Islands, People's Republic of China (PRC), Hong Kong Special Administrative Regions (SAR of the PRC), Macau SAR of the PRC, Christmas Island, Cocos (Keeling) Islands, Cook Islands, Fiji, French Polynesia, Guam, India, Indonesia, Japan, Johnston Island, Kiribati, Korea (Democratic People's Republic of), Korea (Republic of), Lao People's Democratic Republic, Malaysia, Maldives, Midway Islands, Mongolia, Myanmar, Nauru, Nepal, New Caledonia, New Zealand, Niue, Norfolk Island, Pacific Islands (Trust Territory), Pakistan, Papua New Guinea, Philippines, Pitcairn Island, Samoa, Singapore, Solomon Islands, Sri Lanka, Thailand, Tokelau, Tonga, Tuvalu, Vanuatu, Vietnam, Wake Island, Wallis, Futuna Islands and Other Asia and Pacific.

## Economic organizations

**Organization of the Petroleum Exporting Countries (OPEC)** — Members: Algeria (1969), Angola (2007), Ecuador (reactivated membership in 2007), Gabon (rejoined OPEC in 2016), the Islamic Republic of Iran (1960), Iraq (1960), Kuwait (1960), Libya (1962), Nigeria (1971), Qatar (1961), Saudi Arabia (1960), United Arab Emirates (1967), Venezuela (1960).

**Organization for Economic Co-operation and Development (OECD)** — Members: Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States and Other OECD.

**Former Soviet Union (FSU):** Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

## Abbreviations

### Symbols:

- na Not available.
- nap Not applicable.
- Zero, nil or negligible.

### Currencies:

\$	US dollar	XAF	Central African CFA franc	NGN	Nigerian naira
€	Euro	IRR	Iranian rial	QAR	Qatari riyal
DZD	Algerian dinar	IQD	Iraqi dinar	SAR	Saudi Arabian riyal
AOA	Angolan new kwanza	KWD	Kuwaiti dinar	AED	United Arab Emirates dirham
\$	Ecuador	LYD	Libyan dinar	VEF	Venezuelan bolivar fuerte

### Miscellaneous:

b	barrel(s)	dwt	deadweight tonnage	m b	million barrels
b/d	barrels per day	fob	free on board	NCV	net calorific value
b/cd	barrels per calendar day	ft	feet	NCF	non-conventional
b/sd	barrels per stream day	GDP	gross domestic product	NOC	national oil company
b/yr	barrels per year	GTL	gas to liquids	NGLs	natural gas liquids
b	billion	LHS	left-hand side	RHS	right-hand side
bn b	billion barrels	LNG	liquefied natural gas	s cu m	standard cubic metres
cif	cost, insurance and freight	LPG	liquefied petroleum gas	t	tonne
cu m	cubic metres	m	million		

Rounding: In all tables totals may not add up due to independent rounding.

## Selected oil companies

ADCO	Abu Dhabi Company for Onshore Oil Operations	NIOC	National Iranian Oil Company
ADMA	Abu Dhabi Marine Areas	NNPC	Nigerian National Petroleum Corporation
ADMA-OPCO	Abu Dhabi Marine Operating Company	NOC	National Oil Corporation (Libya)
ADNOC	Abu Dhabi National Oil Company	NODCO	National Oil Distribution Company (Qatar)
ADOC	Abu Dhabi Oil Company	NPHR	New Port Harcourt Refinery
Agip	Agip SpA	Oasis	Oasis Oil Company of the Libya, Inc
Agoco	Arabian Gulf Oil Company (Libya)	Occidental	Occidental Petroleum Corporation
Amerada Hess	Amerada Hess Corporation	OMV	OMV Aktiengesellschaft
AOC	Arabian Oil Company	PDVSA	Petroleos de Venezuela SA
Aramco	Saudi Arabian Oil Company (Saudi Aramco)	Pertamina	Perusahaan Pertambangan Minyak Dan Gas Bumi Negara
Arco	Atlantic Richfield Company	Petroecuador	National oil company of Ecuador
Asamera	Asamera Oil	Petroindustrial	Refinery operations company of Ecuador
Ashland	Ashland Oil	Petromer Trend	Petromer Trend Corporation
BP	BP plc	Petromin	General Petroleum and Mineral Organization of Saudi Arabia
Braspetro	Petrobras Internacional SA	Petroproduccion	Exploration and production oil company of Ecuador
Brega Marketing	Brega Petroleum Marketing Company	Phillips	Phillips Petroleum Company
Buttes	Buttes Gas & Oil Company	PPMC	Pipeline and Products Marketing Company (Nigeria)
Calasiatic	Calasiatic Petroleum Company	QGPC	Qatar General Petroleum Corporation (now Qatar Petroleum)
Caltex (PT)	PT Caltex Pacific Indonesia	Royal Dutch/Shell	Royal Dutch Petroleum Company, The Netherlands, and Shell Transport and Trading Co, UK
ChevronTexaco	ChevronTexaco Corporation	Sonangol	Sociedade Nacional de Combustíveis de Angola
Conoco	Continental Oil Company	Sonatrach	Société Nationale de Transport et de Commercialisation des Hydrocarbures
Corpoven	Corpoven SA	Stancal	Standard Oil Company of California
DPC	Dubai Petroleum Company	PT Stanvac	PT Stanvac Indonesia
EGPC	Egyptian General Petroleum Corporation	Tenneco	Tenneco Incorporated
ExxonMobil	ExxonMobil Corporation	Tesoro	Tesoro Indonesia Petroleum Corporation
GASCO	Abu Dhabi Onshore Gas Company	Topco	Texas Overseas Petroleum Company
Getty	Getty Oil Corporation	Total	Total
GOC	Gabon Oil Company	Union Oil	Union Oil Company of California
Gulf	Gulf Oil Corporation	VOO	Veba Oil Operations (Libya)
Hispanoil	Hispanica de Petroleos SA	Waha Oil	Waha Oil Company (Libya)
INOC	Iraq National Oil Company	Wintershall	Wintershall AG
Inpex	Indonesia Petroleum Ltd	WRPC	Warri Refinery & Petrochemical Company
JORC	Jeddah Oil Refinery Company	Zadco	Zakum Development Company
KRPC	Kaduna Refinery & Petrochemical Company	ZOC	Zueitina Oil Company (Libya)
KNPC	Kuwait National Petroleum Company KSC		
KOC	Kuwait Oil Company KSC		
Lagoven	Lagoven SA		
Maraven	Maraven SA		
Maxus	Maxus Energy Corporation		
Mobil	Mobil Oil Corporation		
NIGC	National Iranian Gas Company		

## Major sources

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IEA Monthly Oil Data Service (MODS)	Petrostrategies
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OECD/IEA: Energy Statistics of non-OECD countries	World Oil
	World Petroleum Trends

## Conversion factors

### Crude oil

Standard factors	Metric tonne	Long ton	Barrels	Cubic metres (kilolitres)
Metric tonne	1	0.984	7.33	1.165
Long ton	1.016	1	7.45	1.128
Barrels	0.136	0.134	1	0.159
Cubic metres (kilolitres)	0.858	0.887	6.289	1

### By country (b/tonne)

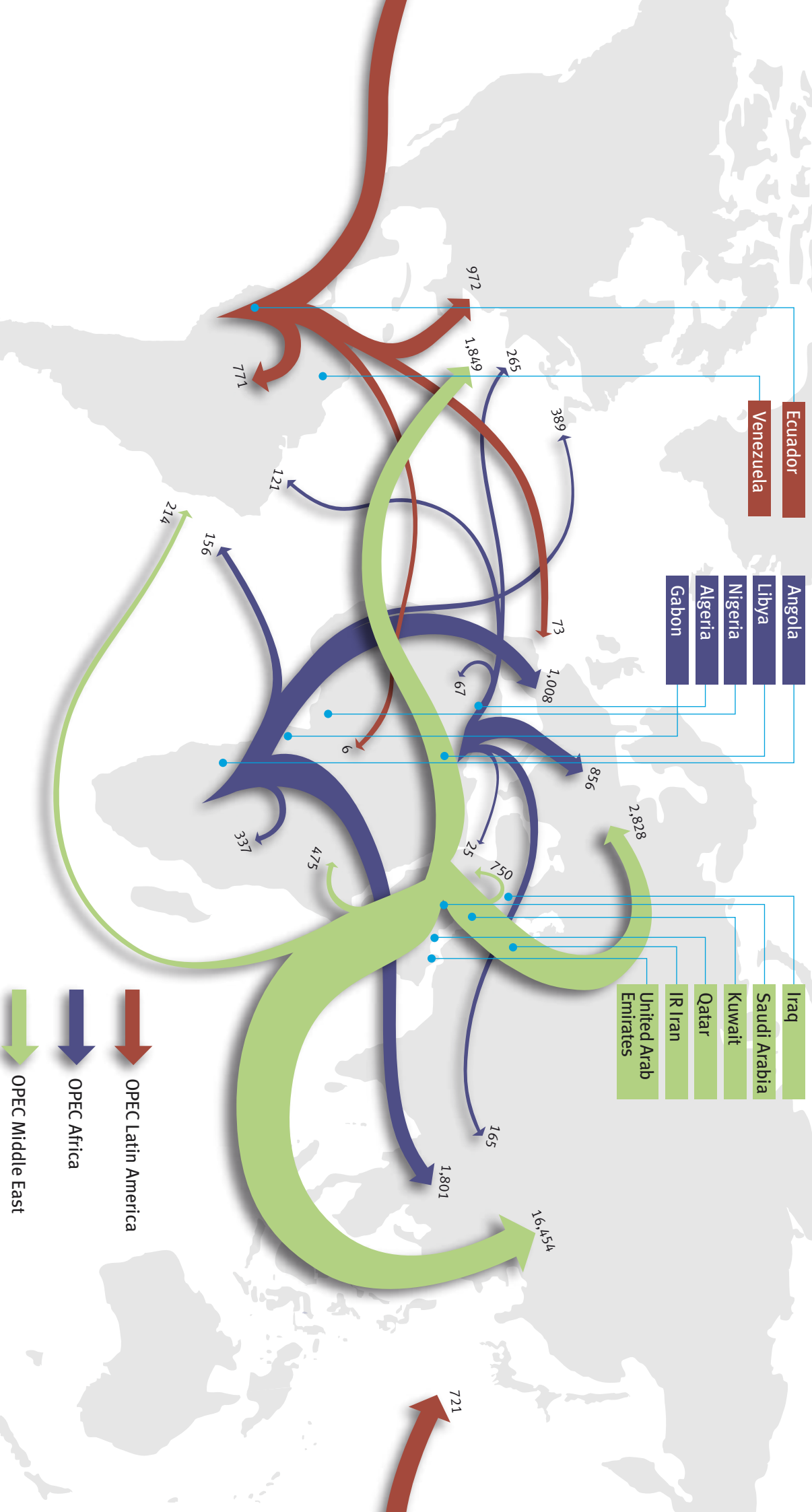
Algeria	8.05153
Angola	7.12980
Ecuador	6.90632
Gabon	7.44179
IR Iran	7.38161
Iraq	7.37905
Kuwait	7.27604
Libya	7.57006
Nigeria	7.36997
Qatar	7.32850
Saudi Arabia	7.32271
United Arab Emirates	7.56491
Venezuela	6.68816
<b>OPEC</b>	<b>7.32600</b>

### Petroleum products (b/tonne)

Gasoline	8.4998
Kerosene	7.7652
Distillates	7.2296
Residuals	6.6208

# Major OPEC Members' flows of crude and refined oil (1,000 b/d)

# 2016







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