

# Oil & NGL extraction data

Richard Heede  
Climate Mitigation Services  
File started: 11 January 2005  
Last modified: April 2013

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## Total S.A., France

yellow column indicates original reported units **Investor-owned**

www.total.com Paris

## Production / Extraction data

### Crude Oil & NGL

Year

Company 1	Company 2	Company 3	Total	Company 1	Company 2	Company 3	Total
Million tonnes/yr	Thousand bbl /d	Million tonnes/yr	Thousand bbl /d	Million tonnes/yr	Million bbl /yr	Million bbl /yr	Million bbl /yr
Total Group	Total Group	Elf Aquitaine		CFP-Total	CFP-Total	Elf Aquitaine	Sum

Compagnie Française des Pétroles, now Total, was established in March 1924

named PetroFina in 1922

CFP inherits Deutsche Bank's interests in Turkish Petroleum Co as war reparations, provides access to oil fields in Mesopotamia

CFP makes discovery in Iraq (Lirkuk, Baba Gurgur field, substantial reserves (no data))

Gulbenkian, Anglo-Persian et al 31Jul28 "Red Line" Agreement

CFP enters the oil exploration business (Cheriffene des Petroles) in Morocco

French govt raises its stake in CFP from 25 to 35 percent

CFP's refinery in Normandy inaugurated in 1933; capacity 900,00 tonnes/yr

CFP pipeline from Kirkuk to Haifa receives 4 million tonnes of crude

Acquires 23.75 percent equity in newly formed Petroleum Dev. Qatar

Acquires 23.75 percent equity in newly formed Petroleum Dev. Oman

PetroFina moves to new HQ in Brussels

CRPM discovers gas in SW France (becomes Elf Aquitaine later); no data; Trucal Coast Petr. Dev. formed (later United Arab Emirates)

Normandy refinery assets burned

Bureau de Recherches de Pétrole, RAP, and BRP are forerunners of Elf Equitaine

30-inch pipeline from Kirkuk to Banias (Syria) is commissioned: "springboard for CFP expansion"

CFP acquires 6% interest in the Iranian Oil Consortium (NIOC)

Algeria: CFP (49%) and SN Repal (51%) discover Hassi Messaoud oil field and Hassi R'Mel gas field

American PetroFina takes over American Liberty Oil Co.; Lacq gas processing plant commissioned

Abu Dhabi: ADMA discovers Umm Shaif oil field offshore Das Island, brought on stream in 1962

Production starts at Hassi Messaoud in Algeria

Elf Aquitaine, SPAEF discovers N'Tchengue oil field in Gabon

CFP, Algeria: world's first gas liquefaction plant built, uses Hassi R'Mel gas.

CFP-Total, ADMA discover Zakum oil field in Abu Dhabi

Elf Aquitaine, RAP take joint interest in TOSCO

PetroFina: North Sea gas fields discovered; Elf discovers Doublet oil in Tunisia

Ekofsk oil field discovered in

Total Group	thousand bbl /day	Total Group	million bbl /yr
equity oil ~40%	1,086.5		
million tonnes/yr	1,241.2	0.63	Ekofsk

Total Group

1 tonne = 7.33 bbl

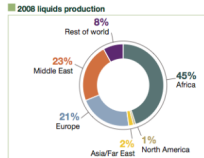
million bbl /yr

396.6

453.6



Elf Aquitaine	million tonnes/yr
17.1	17.1
17.1	17.8
14.9	21.2



Total Fact Book 2008, page 49

Year	"technical prod"	"entitlement prod"	"technical prod"
	thousand bbl /day	thousand bbl /day	million bbl /yr
2000	1,433		1,433
2001	1,454		1,454
2002			580.0
2003			606.3
2004	1,757	1,695	641.3
2005	1,704	1,621	622.0
2006	1,614	1,506	589.1
2007	1,624	1,506	592.8
2008	1,607	1,456	586.6
2009	1,667		608.5
2010	1,640		598.6

Technical production def ned as equity share of wellhead production; entitlement: production def ned as FAS 69 production plus mining, including equity aff liates.

<b>Total</b>	<b>na</b>	<b>na</b>	<b>4,239</b>	<b>3,450</b>	<b>11,839</b>	<b>8,172</b>	<b>2,882</b>	<b>23,683</b>
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# Natural Gas extraction data

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## Total S.A., France

www.total.com Paris

yellow column indicates original reported units

Investor-owned

## Production / Extraction data

### Natural Gas

Year

Company 1	Company 2	Company 3	Total	Company 1	Company 2	Company 3	Total
Billion SCM/yr	Million cf/d	Million SCM/yr	Million cf/d	Billion cf/yr	Billion cf/yr	Billion cf/yr	Billion cf/yr
Total Group		Elf Aquitaine		CFP - Total	PetroFina	Elf Aquitaine	Sum



Baba Gurgur 45-meter gusher 15Oct27 near Kirkuk.  
www.total.com

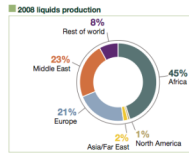


Exploration in Gabon in the 1930s. Courtesy www.total.com  
SNPA discovers Lacq gas field in France in 1951.

### Liquids production

(in thousands of barrels per day)

	2006	2007	2008	2009	2010
<b>Africa</b>	633	622	603	612	628
Algeria	320	320	320	320	42
Angola	200	198	193	144	152
Gabon	13	13	13	12	13
Libya	74	87	84	84	62
Nigeria	168	176	188	209	221
Republic of Congo	80	74	69	61	67
<b>Europe</b>	11	15	21	21	23
Canada	8	2	1	0	15
United States	3	13	6	8	14
<b>North America</b>	11	15	21	21	23
Algeria	14	14	11	11	11
Bahrain	3	3	3	3	3
Colombia	9	10	13	13	24
Trinidad & Tobago	6	9	9	12	11
Venezuela	6	6	6	6	6
<b>Asia/Pacific</b>	29	33	33	33	33
Brunei	2	2	3	3	3
Indonesia	21	20	20	20	22
Thailand	6	6	6	6	6
<b>Commonwealth of Independent States</b>	12	10	7	6	8
Azerbaijan	4	3	4	4	4
Russia	8	7	3	2	4
<b>Europe</b>	202	202	202	202	428
France	6	6	6	7	9
The Netherlands	1	1	1	1	1
Norway	204	211	207	207	208
United Kingdom	87	117	121	126	121
<b>Middle East</b>	63	63	63	63	110
Iran	9	18	20	20	24
Oman	44	39	39	31	31
Saudi	15	15	16	22	20
U.A.E.	10	11	14	14	16
Yemen	12	9	9	9	7
<b>Total consolidated production</b>	1,109	1,246	1,218	1,349	1,411
<b>Equity affiliates and non-consolidated subsidiaries</b>					
Africa	19	20	20	24	37
Middle East	241	242	263	248	247
Rest of world	87	87	87	87	87
<b>Total equity affiliates and non-consolidated subsidiaries</b>	247	249	269	272	269
<b>Worldwide production</b>	1,456	1,495	1,487	1,621	1,680



90 / TOTAL - FACTBOOK 2008, page 50.  
Total S.A. Factbook 2008, page 50.

### Total S.A.'s coal production, minor, not entered on Coal.xls

	Million tonnes/yr	Million tonnes/yr
1987	4.1	4.1
1988	3.7	3.7

Total Group		Total Group	
Billion m <sup>3</sup> /yr		million cf/day	
			47.7
	excludes LNG		
	0.2		
	0.3		
	0.5		
	1.2		
	3.0		
	4.9		
	5.6	Total Group	
	5.9	Gas Sales	
	5.4	Billion SCM/yr	
	5.8	18.3	Elf Aquitaine
	6.0	20.6	Billion SCM/yr
	5.7	21.9	
	5.4	20.2	



Total Group		Total Group	
Billion m <sup>3</sup> /yr		million cf/day	
	3,758		
	4,061		
	"technical prod"	"entitlement prod"	"technical prod"
	million cf/day	million cf/day	Bcf/yr
2004	5,453	4,894	1,990
2005	5,483	4,780	2,001
2006	5,389	4,674	1,967
2007	5,497	4,839	2,006
2008	5,800	4,837	2,117
2009	5,318		1,941
2010	6,429		2,347

Total Group		TotalFinaElf	
Bcf/yr		Bcf/yr	
	17.4		17
	11.8	interpolated	12
	6.1		6
	12.0		12
	18.4		18
	42.6		43
	106.8		107
	171.6		172
	196.1		196
	206.8		207
	191.8		192
	203.5	Elf Aquitaine	203
	212.1	Bcf/yr	212
	201.1		809
	190.7		742
	208.3	132.7	851
	229.5	151.3	939
	237.4	199.6	942
	272.3	209.7	934
	326.7	217.0	963
	349.3	221.9	1,020
	353.0	218.1	1,038
	424.9	211.7	1,131
	435.4	204.0	1,134
	506.3	210.7	1,227
	543.1	208.9	1,242
	1,134.1		1,134
	1,158.9		1,159
	1,375.4	Merged 1999	1,375
	1,482.3	Merged 2000	1,482
	1,654.2		1,654
	1,746.9		1,747
	1,786.3		1,990
	1,745		2,001
	1,706		1,967
	1,766.2		2,006
	1,765.5		2,117
		2,122	1,941
			2,347

Total	na	na	14,370	8,769	22,996	2,186	6,527	37,309
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**Cell:** G9**Comment:** Rick Heede:

Total.com ([www.total.com/en/about-totalgroup-presentation/group-history-940553.html](http://www.total.com/en/about-totalgroup-presentation/group-history-940553.html))

"France has no oil, but it does have one of the world's leading oil companies. How did the former Compagnie française des pétroles, now Total, born on 28 March 1924, become a major operator on the global oil scene?

Looking back, it is an impressive feat since the Group has had to contend with the vicissitudes of history - crises, wars, nationalizations by producing countries, technological changes - since its inception. Total has developed since that time and has expanded its presence throughout the world. Since 1999, the company has strengthened itself by merging with PetroFina and, at the beginning of 2000, with Elf Aquitaine, so as to join the small club of oil and natural gas majors.

The Illustrated History of Total invites you to discover the saga of Total, which began in the Iraqi sands in the 1920s and to retrace the steps of a company nimble enough to adapt to its environment by going international, diversifying and staying innovative: the conquest of new fields, expansion of the global marketing network and the creation of a major chemical production business. Oil may be a highly strategic form of energy, a heavy industry involving huge capital expenditure and critical technology developments, but the Illustrated History of Total also aims to tell the story of the men and women who built patiently and boldly the company as we know it today."

History ([wikipedia.en.wikipedia.org/wiki/Total\\_S.A.](http://wikipedia.en.wikipedia.org/wiki/Total_S.A.))

The company was founded after World War I after the French Prime Minister Raymond Poincaré rejected the idea of forming a partnership with Royal Dutch Shell in favour of creating an entirely French oil company. At Poincaré's behest, Col. Ernest Mercier enlisted the support of ninety banks and companies to found Total on 28 March 1924, as the Compagnie française des pétroles (CFP), literally the "French Petroleum Company". Petroleum was seen as vital in the case of a new war with Germany. However, the company was from the start a private sector company (it was listed on the Paris Stock Exchange for the first time in 1929). CFP took up the 23.75% share of Deutsche Bank in the Turkish Petroleum Company (renamed the Iraq Petroleum Company), awarded to France as compensation for war damages caused by Germany during World War I by the San Remo conference. In 1991 the company name became simply Total. After Total's takeover of Petrofina in 1999, it became known as Total Fina. Afterwards it also acquired Elf Aquitaine. First named TotalFinaElf after the merger in 2000, it was later renamed back to Total in May 2003.

Chart of the major energy companies dubbed "Big Oil" sorted by latest published revenue As of 2010, Total had over 96,000 employees and operated in more than 130 countries [2] As recently as 1992, the French government still held 5% of the firm's shares, down from a peak of over thirty percent. In the time period between 1990 and 1994, foreign ownership of the firm increased from 23 per cent to 44 per cent. Qatar is reported to have a 3 percent stake."

**Cell:** K12**Comment:** Rick Heede:

Total net worldwide crude oil plus natural gas liquids produced by each company or state-owned enterprise. Where data is available, we list gross production (before royalty production is netted out). More often, however, oil companies report production net of royalty production.

Crude production includes natural gas liquids (NGL) unless noted.

**Cell:** W12**Comment:** Rick Heede:

Natural gas is typically reported as dry gas; natural gas liquids are reported under crude oil.

Carbon dioxide is normally removed from the gas flow at the production site (see "Vented Carbon Dioxide").

"SCM/d" = standard cubic meters per day. "cf/d" = cubic feet per day.

Net production typically excludes a number of diverted gas streams. Quantities and fractions vary; ExxonMobil's exclusions are probably typical of the industry: "Net production available for sale quantities are the volumes withdrawn from ... natural gas reserves, excluding royalties and volumes due to others when produced, and excluding gas purchased from others, gas consumed in producing operations, field processing plant losses, volumes used for gas lift, gas injections and cycling operations, quantities flared, and volume shrinkage due to the removal of condensate or natural gas liquids production."

ExxonMobil Corporation (2004) 2003 Financial and Operating Review, [www.exxonmobil.com](http://www.exxonmobil.com), p. 55.

**Cell:** H27**Comment:** Rick Heede:

Beltran, Alain (2010) A Comparative History of National Oil Companies, P.I.E. Peter Lang, Brussels, 356 pp.

**Cell:** H32**Comment:** Rick Heede:

Total history, CFP-Total: "first oil from Iraq arrives in Tripoli in July and in Haifa at the end of the same year. The two pipelines have an annual throughput of 4 million metric tons." The oil is transported to CFP's new refinery near Le Havre.

CMS assumes that all of the pipelined crude oil is produced by CFP-Total. That said, CMS does not have data on CFP-Total's worldwide oil production, of which its Kirkuk operations may be a small part.

**Cell:** N49**Comment:** Rick Heede:

SNPA discovers Lacq gas field in France in 1951.

**Cell:** N55**Comment:** Rick Heede:

Oil & Gas Journal OGJ100 production data, billion cf (Bcf) per year, various years.

**Cell:** V62**Comment:** Rick Heede:

Total coal production reported for 1988 only, including production in US (PA), Europe, Australia, "Far East," and "Southern Africa" in Total (1989) Annual Report, page unknown.

**Cell:** D68**Comment:** Rick Heede:**Cell:** E69**Comment:** Rick Heede:

Total Group (1971-1972) reports in exquisite detail about the geographic permit areas in sq km, but precious little data on crude oil or natural gas produced. CMS has culled a few bits of quantitative data for 1971 and/or 1972.

While it raises questions about reliable reporting, we quote:

North America: "Your affiliate's output, originating mainly from operations in Canada, was 5,500 b/d of crude oil," and 12.1 million cfd of natural gas, i.e., an increase of respectively 19% and 7% as compared to 1971."

North Africa: "The Group's offtakes in Algerian crude oil reached 141,500 b/d in 1972."

Middle East: "Your Company's offtakes represented a volume of 1,094,500 b/d vs. 1,082,100 b/d in 1971."

Norway: "Ekofisk, ... from which your Company lifted its share of oil in two cargoes of 314,000 barrels."

CMS enters these data, even though mis-reported by Total.

**Cell:** Q70**Comment:** Rick Heede:

Total Group annual report 1972, pp. 13 & 15, shows Canadian natural gas production of 5,500 cf per day, and at the Leeuwarden gas field in the Netherlands "production reached 35.6 million cfd."

**Cell:** D71**Comment:** Rick Heede:

Total annual reports 1977 and 1978 show operating data, "crude oil resources, own resources (as distinct from purchases), in kilotonnes per year" for 1973-1978. However, in the 1979 annual report it appears that Total's "own resources" does not mean

"equity production," but includes some purchased oil, even though purchased oil is also reported as a separate line item.

CMS concludes that Total produces roughly 40 percent of the total oil reported in its operating data, hence CMS applies this factor to each year 1973-1978.

As a result, eg for 1974, CMS cites reported total resources of 86.595 million tonnes \* 0.406 = 35.2 million tonnes. FOR comparison, that year's "own resources" equaled 70.8 million tonnes. Go figure.

**Cell:** P72**Comment:** Rick Heede:

Total annual report 1978 shows "natural gas marketed on a joint basis: CFP's share" for 1974-1978. CMS only cites data for 1974 here, since subsequent annual reports show higher (presumably through acquisitions or mergers, or better data) for 1975-1978.

**Cell:** P73**Comment:** Rick Heede:

Total annual report 1979 shows "natural gas volumes marketed on a joint basis, overall, billion cubic meters per year" for 1975-1979.

**Cell:** D77**Comment:** Rick Heede:

Total's annual report 1980 reports both "equity oil" production on p. 11 and crude oil resources in the operating data on p. 30. In 1979, for example, equity oil / total resources = 28.6 million tonnes / 70.7 million tonnes = 0.406. CMS applies this fraction to Total's resources reported for 1973-1978; see above.

**Cell:** P78**Comment:** Rick Heede:

Total annual report 1984 shows marketed natural gas in million cubic meters per year 1980-1984. Gas production is not reported. However, gas production is reported for 1983 and 1984 in another table, p.13, "production by operating subsidiaries (deliveries on behalf of Company and associated third parties)" that far exceed marketed natural gas cited above. For example, in 1984, gas production is shown as 20.6 billion cubic meters, whereas natural gas (presumably referring to marketed gas) is shown as 6.01 billion cubic meters. CMS reports the somewhat less ambiguous "production by operating subsidiaries" for 1983 and 1984, but we do not adjust upwards the marketing data for 1974 to 1982

**Cell:** D79**Comment:** Rick Heede:

Total annual report 1982, million tonnes of "equity oil" per year. CMS excludes 33.3 and 30.6 million tonnes of purchased oil in 1981 and 1982, respectively.

**Cell:** D81**Comment:** Rick Heede:  
Total annual report 1984, p. 13, million tonnes of "crude oil production by operating subsidiaries" per year.**Cell:** P81**Comment:** Rick Heede:  
Total annual report 1986, operating data shows natural gas (presumably but ambiguously referring to) marketed amounts in million SCM per year. These quantities do NOT include liquefied natural gas (LNG, in tonnes per year: 1986 = 0.654 million tonnes), nor natural gas liquids (1986 = 1.546 million tonnes).**Cell:** Q81**Comment:** Rick Heede:  
Total annual report 1984, p. 13, billion cubic meters per year.**Cell:** D83**Comment:** Rick Heede:  
Total Group annual report for 1986, oil and gas exploratoin and production table, shows "production by operating subsidiaries" crude oil in million tonnes, for 1985 and 1986. CMS enters 1985 datum at 13.5 million tonnes of crude oil.**Cell:** F83**Comment:** Rick Heede:  
Elf Aquitaine (1987, 1989) Annual Report, p. 11, shows "production accruing to Elf Aquitaine" in 1985 = 17.1 million tonnes; 1986 = 17.1 Mt; 1987 = 17.8 Mt; and 1988 = 21.2 Mt. CMS reports these data, even though Oil & Gas Journal apparently cites the larger quantities Elf Aquitaine reports as "Aggregate production of Elf Aquitaine operated fields" (27.5, 28.2, 29.3, and 31.7 million tonnes in 1985, 1986, 1987, and 1988, respectively).**Cell:** R83**Comment:** Rick Heede:  
"Aggregate production of Elf Aquitaine operated fields" for 1985-1988 from Elf Aquitaine (1987, 1989) Annual Reports, p. 11.

Note: See same year: Oil. Aggregate production is higher than accrued to Elf Aquitaine. 1985 = 17.2 billion m3 (BCM), 1986 = 15.6 BCM, 1987 = 14.45 BCM, and 1988 = 15.80 BCM.

**Cell:** I85**Comment:** Rick Heede:  
Oil & Gas Journal OGJ100 or Data Book, various years, Petrofina (Belgium), for 1987-1997.**Cell:** U85**Comment:** Rick Heede:  
Oil & Gas Journal OGJ100 or Data Book, various years, Petrofina (Belgium), for 1987-1997.**Cell:** H86**Comment:** Rick Heede:  
Oil & Gas Journal OGJ100 production data, million bbl per year, various years.**Cell:** V86**Comment:** Rick Heede:  
Oil & Gas Journal Data Book 1990 estimates Elf Aquitaine natural gs production as 829 and 890 Bcf in 1988 and 1987, respectively; Elf Aquitaine Annual Rpt for 1989 shows 15.8 billion SCM/yr for 1988 (= 558 Bfc).

CMS cites company data. CMS also interpolates for 1989 (whereas OGJ reports 823 Bcf), in line with their previous years' estimates but higher than reported Elf Aquitaine data.

**Cell:** J87**Comment:** Rick Heede:  
Oil & Gas Journal reports Elf Aquitaine's oil production using "aggregate" rather than "production accruing to company." CMS reports the latter, which we interpret to mean equity production. We do not have Elf Aquitaine annual reports for 1989-1997 to correct OGJ's reporting. In 1988, for example, CMS uses 21.2 million tonnes (equals 155 million bbl), whereas OGJ cites 236 million bbl.**Cell:** U91**Comment:** Rick Heede:  
Oil & Gas Journal databook 1996, page 20-21, "after royalty" reports 530.2 Bcf for PetroFina's gas production in 1993, but as 218.1 Bcf in the 1995 Data Book; CMS cites the latter, assumes typo in later edition.**Cell:** D98**Comment:** Rick Heede:  
Oil and gas production for 2000-2001 from EI (2003) Top 100, p. 258.**Cell:** E102**Comment:** Rick Heede (Jan10):  
Total (2009) Fact Book 2008, "technical" and "entitlement" production 2004-2008 in thousand bbl per day, www.total.com, page 11. Footnote: "Technical production defi ned as equity share of wellhead production; entitlement production defi ned as FAS 69 production plus mining, including equity affi liates."**Cell:** K102**Comment:** Rick Heede:  
CMS uses Total data from its Fact book 2008 for 2004-2008 production, "technical production" (which appears to translate as equity share of gross production; Oil & Gas Journal OGJ100 cites Total's "entitlement production" instead.**Cell:** Q102**Comment:** Rick Heede:  
Total (2009) Fact Book 2008, "technical" and "entitlement" production 2004-2008 in million cf of natural gas per day, www.total.com, page 11. Footnote: "Technical production defi ned as equity share of wellhead production; entitlement production defi ned as FAS 69 production plus mining, including equity affi liates."**Cell:** W102**Comment:** Rick Heede (jan10):  
CMS cites Total's own data for "technical production" of natural gas (see data in columns "M" and "N") for 2004-2008. CMS cites Oil & Gas Journal's OGJ100 and other sources (such as Elf Aquitaine) for 1970-2003.**Cell:** D106**Comment:** Rick Heede:  
AR2010 shows 1456+347=1803 Liquids total production +share of equity and non-consolidated affiliates (Rhea)**Cell:** H106**Comment:** Rick Heede:  
OGJ100 6Sep2010 pg 67, increased earlier reported 2008 production**Cell:** P106**Comment:** Rick Heede:  
AR2010 reports 4837+298=5135 Total+share of equitea and non-consolidated affiliates**Cell:** D107**Comment:** Rick Heede:  
AR2010 Liquids total production +share of equity and non-consolidated affiliates**Cell:** P107**Comment:** Rick Heede:  
AR2010 Total+share of equitea and non-consolidated affiliates**Cell:** V107**Comment:** Rick Heede:  
OGJ100 6Sep2010 pg 67