

Crude oil extraction data

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

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ConocoPhillips, USA

www.conocophillips.com Houston

yellow column indicates original reported units
Investor-owned

Year	Crude Oil & NGL													
	Company 1	Company 2	Company 3	Company 4	Company 5	Sum production	Company 1	Company 2	Company 3	Company 4	Company 5	Company 6	Company 7	Sum production
	Thousand bbl/d	Thousand bbl/d	Thousand bbl/d	Thousand bbl/d	Thousand bbl/d	Thousand bbl/d	Million bbl/yr	Million bbl/yr	Million bbl/yr	Million bbl/yr	Million bbl/yr	Million bbl/yr	Million bbl/yr	Million bbl/yr
	Continental 1946 ConocoPhillips 2010	Phillips Petroleum Co 1950-2001	Atlantic 1941-1966, ARCO 1967-1999	Richfield	Sinclair Oil Corp 1946-1969 (acq by ARCO 1969)		Continental 1875 ConocoPhillips 2010	Phillips Petroleum Co 1905-2002	Atlantic 1941-1966, ARCO 1967-1999	Richfield Oil 1924-1966	Sinclair Oil Corp 1946-1969 (acq by ARCO 1969)	Gulf Canada 1950-2001	Burlington Resources 2006-	Total



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1923															Sum
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2001															424
2002															425
2003															412
2004															431
2005															519
2006															558
2007															539
2008															520
2009															533
2010															502
Total	na	na	na	na	na	na	11,007	6,461	4,452	286	742	1,462	549	24,961	

24,961

Natural gas extraction data

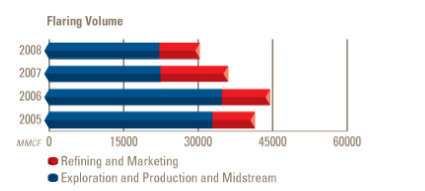
Richard Heede
 Climate Mitigation Services
 File started: 11 January 2005
 Last modified: April 2013

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ConocoPhillips, USA

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

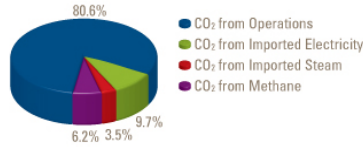
Year	Natural Gas												
	Company 1	Company 2	Company 3	Company 4	Sum production	Company 1	Company 2	Company 3	Company 4	Company 5	Company 6	Company 7	Sum production
	Million cf/d	Million cf/d	Million cf/d	Million cf/d	Million cf/d	Billion cf/yr	Billion cf/yr	Billion cf/yr	Billion cf/yr	Billion cf/yr	Billion cf/yr	Billion cf/yr	Billion cf/yr
	Continental 1946 ConocoPhillips 2008	Phillips Petroleum Co 1950-2001	AtlanticRichfield (50% 1967- 1999	Richfield Oil 1924 1966	Sum (million cf/day)	Continental 1946 ConocoPhillips 2008	Phillips Petroleum Co 1917-2002	AtlanticRichfield (50% 1967- 2000	Richfield Oil 1924 1966	Sinclair Oil Corp 1946-1969 (acq by ARCO 1969)	Gulf Canada 1950-2001	Burlington Resources 2006-	Total



Year	Phillips	Atlantic	Richfield	Continental	Phillips	Half of Atlantic & ARCO prod'n allocated to BP	Merger 1966	OGI 200	Union Texas Petri	Acq 1999	Acq 2001	Acq 2006	Sum
Year	Bcf/yr	Bcf/yr	Bcf/yr	Bcf/yr	Bcf/yr	Bcf/yr	Bcf/yr	Bcf/yr	Bcf/yr	Bcf/yr	Bcf/yr	Bcf/yr	Bcf/yr
1923													
1924													
1925													
1926													
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1945													
1946	941.0				97.5	343.5							941
1947	996.2				106.6	363.6							1093
1948	1,069.2				113.2	390.3							1144
1949	1,146.0	Atlantic (half to Conoco)			99.7	418.3							125
1950		1,758.5	277.0			107.0							137
1951		2,072.9	324.2			127.1							151
1952		2,074.1	340.4			140.9							166
1953		2,059.9	351.1			144.2							182
1954		2,219.5	335.9			142.9							200
1955		2,296.9	338.9	3.8		127.6							220
1956		2,386.1	364.6	5.3		136.4							241
1957		2,576.4	386.1	2.7		136.1							265
1958		2,606.9	398.3	10.7		140.7							228
1959		2,798.9	459.7	25.5		161.1							241
1960	502.0	2,697.1	509.7	51.3		183.2							254
1961	492.0	2,595.3	526.6	54.4		179.6							267
1962	576.0	2,493.5	568.2	73.1		210.2							280
1963	714.0	2,391.7	623.8	75.0		260.6							295.9
1964	800.0	2,289.9	805.4	81.2		292.0							311.7
1965	829.0	2,188.0	906.0			302.6							311.7
1966	885.0	2,086.2	973.6			323.0							327.6
1967	912.0	1,984.4	976.0			332.9							241.1
1968	991.0	1,882.6	1,079.0			361.7							254.1
1969	1,071.0	1,780.8	1,977.0			390.9							267.0
1970	1,233.0	1,679	2,056.0			450.0							280.0
1971	1,271.0	1,665	2,064.0			463.9							295.9
1972	1,395.0	1,653	2,017.0			509.2							311.7
1973	1,522.0	1,603	1,913.0			555.5							311.7
1974	1,617.0	1,570	1,739.0			590.2							311.7
1975	1,551.0	1,455	1,586.0			566.1							311.7
1976	1,606.0	1,380	1,748.0			586.2							311.7
1977	1,579.0	1,343	1,642.0			576.3							311.7
1978	1,504.0	1,549	1,517.0			549.0							311.7
1979	1,472.0	1,558	1,486.0			537.3							311.7
1980		1,497	1,388.0			504.2							311.7
1981		1,388	1,296.0			471.2							311.7
1982		1,260	1,272.0			438.1							311.7
1983		1,266	1,350.0			405.1							311.7
1984		1,288	1,498.0			470.1							311.7
1985			1,452.0			339.0							311.7
1986			1,385.0			339.0							311.7
1987			1,436.0			305.0							311.7
1988			1,543.0			327.0							311.7
1989			1,698.0			397.0							311.7
1990			1,747.0			374.0							311.7
1991	1,130		1,660.0			417.0							311.7
1992	1,180		1,442.0			431.0							311.7
1993	1,311		1,232.0			481.0							311.7
1994						485.0							311.7
1995						453.0							311.7
1996						485.0							311.7
1997						441.0							311.7
1998						515.0							311.7
1999						606.0							311.7
2000	3,641					624.0							311.7
2001	3,300					741.0							311.7
2002						842.0							311.7
2003						1,407.0							311.7
2004						1,375.0							311.7
2005	3,317					1,193.6							311.7
2006	3,270	AnnRpt				1,814.1							311.7
2007	4,970	AnnRpt				1,856.8							311.7
2008	5,087	AnnRpt				1,769.2							311.7
2009	4,847		2008 emissions Product emissions			2,517.8							311.7
2010	6,898					2,329.8							311.7
2010	6,383												311.7
Total	na	na	na	na	na	35,044	39,349	11,294	55	1,340	5,266	9,190	101,538

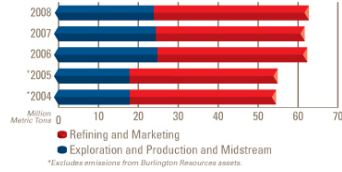
	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV
1	Coal extraction data												
2	Richard Heede												
3	Climate Mitigation Services												
4	File started: 11 January 2005												
5	Last modified: 11 November 2011												
6													
7													
8	ConocoPhillips, USA												
9													
10	Year	Coal											
11		Company 1 production	Company 2 production	Sum production	Company 1 production	Company 2 production	Sum production						
12		Million tons/yr	Million tons/yr	Million tons/yr	Million tonnes/yr	Million tonnes/yr	Million tonnes/yr						
13		Atlantic 1950-66, ARCO 1967-1999	Continental & Conoco				Total						
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101	2008												
102	2009												
103	2010												
104													
105	Total	539	495	1,820	-	-	1,651						
106													

2008 Greenhouse Gas Emissions
Company



ConocoPhillips GHG emissions data from company website

Total Greenhouse Gas (GHG) Emissions (CO₂ Equivalent)



Consolidation Coal Company
owned by Continental Oil
from 1966 to 1998

Year	Coal prod'n million tons/yr	Conoco acquired Consolidation Coal	million tonnes/yr
1966	55.5		50.3
1967	57.7		52.3
1968	59.9		54.3
1969	60.9		55.2
1970	57.37		58.1
1971	49.02		49.7
1972	58.51		58.9
1973	54.42		54.9
1974	47.09		46.9
1975	49.17		49.8
1976	50.61		50.7
1977	43.75		43.5
1978	38.33		37.9
1979	47.18		45.5
1980	49.0		44.4
1981	42.1		38.2
1982	47.0		42.6
1983	42.2		38.3
1984	46.7		42.3
1985	42.7		38.7
1986	41.5		37.7
1987	52.5		47.6
1988	54.9		49.8
1989	53.5		48.5
1990	54.6		49.5
1991	55.2		50.1
1992	56.3		51.1
1993	45.6		41.4
1994	70.5		64.0
1995	69.1		62.7
1996	70.1		63.6
1997	72.8		66.1
1998	73.2		66.4

CMS attributes Conoco Coal Company's production to CONSOL Energy which acquired the mining operations from DuPont / Rheinbraun RWE
See CONSOL Energy for details
Conoco acquired Consolidated Coal in 1966

Cell: H8**Comment:** Rick Heede:

"Conoco Inc. was an American oil company founded in 1875 as the Continental Oil and Transportation Company. Based in Ogden, Utah, the company was a coal, oil, kerosene, grease and candles distributor in the West. Marland Oil Company (founded by exploration pioneer E. W. Marland) later acquired the assets (subject to liabilities) of Continental Oil Company, for a consideration of 2,317,266 shares of stock. On June 26, 1929, Marland Oil changed its name to Continental Oil Company and moved its headquarters to Ponca City, Oklahoma. The acquisition gave Conoco the red bar-and-triangle logo previously used by Marland. Conoco used the logo between 1930 and 1970, when the current red capsule logo was adopted. Numerous state corporation filings are identified "Continental Oil Company" and "Continental Oil Corp." and "Continental Oil Company of Texas" as recorded with the Texas Secretary of State and Delaware Secretary of State. Merger of San Jacinto Petroleum Corp. and Continental Oil Corporation is recorded in 1964 with Delaware Secretary of State.

In 2005, ConocoPhillips began rebranding its (Union) 76 gas stations, which Phillips had acquired from Tosco Corporation before the merger with Conoco. The move prompted a petition campaign by fans hoping to save the historic 76 orange ball signage. On January 20, 2007, a Wall Street Journal article on the petition campaign included a statement from ConocoPhillips that it was changing course and would save several dozen orange and blue 76 balls to give to museums. The company also announced that it would fabricate about 100 new 76 ball signs in the ConocoPhillips color scheme of red and blue, to be placed at select 76 stations.

In March 2006, ConocoPhillips bought Wilhelmshavener Raffineriegesellschaft mbH in Germany, and Burlington Resources in the United States. On May 10, 2006, Richard Armitage, former deputy-secretary of the U.S. State Department, was elected to the board of directors of the ConocoPhillips oil company.

In 2007 the Chevron Corporation purchased all of the Conoco gas stations in Mississippi to the Texaco brand, a process to be completed by the end of the year.

In late 2009 the company announced asset sales to increase investor returns. Included are debt reduction and stock buy back. In March 2011 the program was enlarged up to \$10 billion assets sales in the next two years. ConocoPhillips intends to implement a floating liquefied natural gas facility by 2016-2019, and has completed quantitative risk analysis of a design that will undergo pre-feed study in 2011.

On July 14, 2011, ConocoPhillips announced its intent to separate the company's upstream and downstream businesses into two stand-alone, publicly traded corporations, with the intent of maximizing shareholder value. Following the separation, ConocoPhillips will be a large and geographically diverse exploration and production company with a diversified portfolio, and sufficient size and scale to compete globally. Refining and marketing will be done by the independent Downstream Company. The separation of the companies is expected to be complete in the second quarter of 2012.

On November 10, 2011 - ConocoPhillips [NYSE:COP] announced that the new independent downstream company created through its previously announced strategic repositioning will be named Phillips 66 and will be headquartered in Houston. Phillips 66 will have leading businesses in refining, marketing, midstream and chemicals."

History (wikipedia: en.wikipedia.org/wiki/ConocoPhillips)

Cell: AR10**Comment:** Rick Heede:

ConocoPhillips Annual Report 2010, page 5. U.S. gas production + international gas production.

Cell: J13**Comment:** Rick Heede:

"Conoco began in 1875 as the Continental Oil and Transportation Co., one of the first petroleum marketers in the West. ... Standard Oil took control of Continental in 1885, relinquishing it in 1913 upon order by the U.S. Supreme Court. By then, Continental was the top marketer of petroleum products in the Rocky Mountain region, much of its output refined into gasoline as automobiles took to the road in greater number. Continental built the West's first filling station in 1909 and invested in a fleet of delivery trucks, each with three tanks to deliver different types of fuel. Over the next 20 years, the company built more than 1,000 service stations in 15 states, each emblazoned with the trademark Continental soldier. It eased its way into the production and refining of crude oil, merging with several other producers, but always retaining the name Continental Oil." ... Marland Oil Co. merged with Continental Oil and Transportation Co. in 1929. DuPont acquired Conoco in 1981 and divested in 1998.

www.conocophillips.com/EN/about/who_we_are/history/conocoPages/index.aspx

Cell: K13**Comment:** Rick Heede:

"The Beginning of an Era: 1903-1926: Brothers Frank and L.E. Phillips began their quest for oil in 1903, after hearing of vast oil deposits in Oklahoma. In 1905, the brothers hit the first of 81 wells in a row without a single dry hole. Twelve years later, they founded Phillips Petroleum Company, headquartered in Bartlesville, Okla." www.conocophillips.com/EN/about/who_we_are/history/phillips/Pages/index.aspx

Cell: L13**Comment:** Rick Heede:

Phillips Petroleum acquired ARCO Alaska in 2000. We allocate 50 percent of AtlanticRichfield from 1967 through 2000 (the other 50 percent is allocated to BP, which acquired AtlanticRichfield in 1998).

Cell: O13**Comment:** Rick Heede:

ConocoPhillips acquired Gulf Canada in 2001. See company history for additional information. Source: Energy Intelligence (2003) Top 100, p. 126. Oil & Gas Journal has oil and gas production data only through 1998.

Cell: M15**Comment:** Rick Heede:

CMS allocates 50 percent of Richfield and later ARCO production to British Petroleum, and the other 50 percent to ConocoPhillips. These companies each acquired significant assets from ARCO. An asset allocation has not been done; instead we have assumed an equal allocation to each company.

Cell: M19**Comment:** Rick Heede:

Richfield Oil Company of California (1927 and 1928 AnnRptso, p.5) reports oil production for 1926-1928 as well as gasoline sold 1924-1927. On the basis of gasoline sold as a proportion of oil produced in 1926 (0.7630), we estimate oil production for 1924 (1.151 million bbl sold / 0.7630 = 1.509 million bbl produced) and 1925 (2.036 million bbl sold / 0.7630 = 2.668 million bbl produced).

Note: this is may be slightly inflated in view of a 1926 statement (1926, p.5) that "the Company is producing between 50% and 60% of the crude oil required in its operations. However, since data given in the 1928 report shows considerable excess production over sales in 1926-1928, we ignore making any adjustments to the estimated production for 1924 and 1925.

Cell: AB19**Comment:** Rick Heede:

Phillips' natural gas production is estimated for 1926-1936 by applying the average growth per annum 1937-1946 (3.39 percent per year). As a conservatism, and inasmuch as the gas market in the United States was in its early stages of development, we instead increase the growth rate to 9 percent per year.

Cell: K20**Comment:** Rick Heede:

www.conocophillips.com/EN/about/who_we_are/history/phillips/Pages/index.aspx
"By 1927, the company was pumping 55,000 barrels a day from its more than 2,000 wells in Texas and Oklahoma."

Cell: M22**Comment:** Rick Heede:

Richfield 1929 Ann Rpt, p.5, shows 14.515 million bbl (Richfield) and 3.555 million bbl (Universal Consolidated Oil Company, in which Richfield acquired a 51 percent interest in 1929 (we assume equity production is reported); total = 18.07 million bbl.

Cell: M23**Comment:** Rick Heede:

In lieu of having Richfield oil production data for 1930-1937 (lacking copies of annual reports for those years), CMS interpolates production from 1930 to 1937.

Note: This production decline is due to the onset of Depression as well as the resulting mayhem of excessive production capability and the "voluntary curtailment and proration" promulgated by Harold Ickes through state-by-state agreement to balance production with demand as suggested each year by the Bureau of Mines (and formalized in the 1935 Interstate Oil Compact). See Yergin (1991) The Prize, pp. 156ff and 263ff for the global "As-Is" Agreement to curtail production agreed to by oil executives at Achnacarry in Scotland based on each company's market shares in 1928.

Cell: K30**Comment:** Rick Heede:

The first Annual Report we have a copy of is for 1938, which states that "actual production was lower [in 1938 than in 1937] to conform with state proration regulations." (1938, p. 2) We estimate petroleum production in 1937 at four percent higher than known 1938 production.

Phillips was founded in 1917 and was an early developer of "natural gasolines" (in 1923) and LPG (in 1929) from oil and gas production. We do not guesstimate petroleum production from 1917 to 1937.

Cell: AB30**Comment:** Rick Heede:

Phillips Petroleum Corporation Annual Report 1938, p. 2, shows 1938 "natural gas sold" at 228.1 Bcf, "which was 14 per cent less than in 1937. Phillips was an early developer of natural gas (and its liquids), and we estimate production or sales for 1926-1936.

Cell: K31**Comment:** Rick Heede:

Phillips Petroleum Company Annual Report for 1938, p. 2: 20.594 million bbl. We add production of "natural gasoline," which we take to mean natural gas liquids (NGL), totaling 6.828 million bbl in 1940 (286.8 million gallons), or an "NGL adder" of 28.58 percent, or 1.2858.

Cell: M31**Comment:** Rick Heede:

Richfield Oil Corporation 1939 Annual Report. Data for 1939: 7.174 million bbl before royalty and 5.595 million bbl after royalty production; we use this latter net production datum.

Cell: L32**Comment:** Rick Heede:

CMS allocates 50 percent of Atlantic, Richfield, and ARCO production to British Petroleum, and the other 50 percent to ConocoPhillips. These companies each acquired significant assets from ARCO, although an asset allocation has not been done; instead we have assumed an equal allocation to each company.

Cell: K33**Comment: Rick Heede:**

Phillips Petroleum Company Annual Report for 1940, p. 2: 23.895 million bbl. We add production of "natural gasoline," which we take to mean natural gas liquids (NGL), totaling 6.828 million bbl in 1940 (286.8 million gallons), or an "NGL adder" of 28.58 percent, or 1.2858. This factor is thus higher in 1940 than calculated for 1946.

Cell: F34**Comment: Rick Heede:**

Data for 1941-1950 "total production, including LPG) from: Atlantic Refining Company (1951) Annual Report for the Year Ending 31Dec 1950, operating data tables. (Added 14March06.)

Data for "net production" vs "total production," 1941-1950:

1941: 15.1 thousand bbl per day vs 41.345

14.5 thousand bbl per day

17.7 thousand bbl per day

24.6 thousand bbl per day

24.8 thousand bbl per day

23.6 thousand bbl per day

24.3 thousand bbl per day

27.7 thousand bbl per day

25.8 thousand bbl per day

1950: 30.3 thousand bbl per day vs 82.974 k bb/ d

* No explanation for why these data are so different. Later annrpts only report total production, which is never called gross production. In order to make data the same units and type, we use total production here for 1941-1950.

Cell: K35**Comment: Rick Heede:**

Phillips Petroleum Company Annual Report for 1942, p.4: 23.066 million bbl. We estimate production of natural gas liquids by multiplying this net crude oil production by the known crude to NGL ratio in 1946 (in which year NGL was, conservatively, 8.738 million bbl and net crude totaled 33.542 million bbl, or an NGL adder of 26 percent or 1.260.

Cell: M35**Comment: Rick Heede:**

Richfield reports 9.3 million gross production and 7.2 million bbl net (0.774).

Cell: AB35**Comment: Rick Heede:**

Phillips Petroleum Company Annual Report for 1942, p. 2: 280 billion cubic feet, 8.6 percent over [1941].

Cell: k36**Comment: Rick Heede:**

Phillips Petroleum Company Annual Report for 1944, p.4: net oil production of 24.698 million bbl. We estimate un-reported production of natural gas liquids by multiplying this net crude oil production by the known crude to NGL ratio in 1946 (NGL, conservatively, was 8.738 million bbl and net crude totaled 33.542 million bbl, or an NGL adder of 26 percent or 1.260.

Phillips does, in this year, also report gross crude oil production of 45.695 million bbl, or a net equal to 0.5405 of gross "after allocations to outside interests, such as partners and royalty owners."

Cell: M36**Comment: Rick Heede:**

Richfield Oil Corporation does not report gross or net production for 1943 but does report net production of 8.236 million bbl in 1944, "an increase of approx 11% over ... 1943." This is used to estimate net production in 1943; production is halved in order to allocate half to BP and half to ConocoPhillips.

Cell: K37**Comment: Rick Heede:**

Phillips Petroleum Company Annual Report for 1944, p.2: 28.584 million bbl. We estimate un-reported production of natural gas liquids by multiplying this net crude oil production by the known crude to NGL ratio in 1946 (NGL, conservatively, was 8.738 million bbl and net crude totaled 33.542 million bbl, or an NGL adder of 26 percent or 1.260.

Cell: M37**Comment: Rick Heede:**

ARCO acquired Sinclair Oil Corporation in 1969, and since half of ARCO is allocated to both BP and Conoco half of Sinclair is also allocated to each BP and Conoco. Also see notes under columns for Atlantic Oil, ARCO, and Richfield Oil.

Cell: K38**Comment: Rick Heede:**

Phillips Petroleum Company Annual Report for 1945, p.4: 34.223 million bbl. We estimate un-reported production of natural gas liquids by multiplying this net crude oil production by the known crude to NGL ratio in 1946 (NGL, conservatively, was 8.738 million bbl and net crude totaled 33.542 million bbl, or an NGL adder of 26 percent or 1.260.

Cell: M38**Comment: Rick Heede:**

Richfield Oil Corp does not (in our partial copy of the Annual report) show gross or net production for 1945. Refinery runs are shown, however, and we use the net production/refinery run relationship for the year known (1944: 8.236 net prod/n/25.598 refinery runs = 0.3217) times the reported refinery runs for 1945 (25.691 million bbl times 0.3217 = 8.266 million bbl estimated net production in 1945.

Cell: D39**Comment: Rick Heede:**

OGJ (2000) databook data for 1997: 37.2 OGJ (1999) databook data for 1997 at 124.9 million bbl. Conservatively, we use the lower datum.

Cell: K39**Comment: Rick Heede:**

Conservative net production estimate:

Phillips Petroleum Company Annual Report 1950 (Consolidated Five-Year Statistical Information) shows net crude oil produced, to which we add reported "natural gasoline produced, net gallons 26-70 equivalent" at each 42 gal per bbl. For example, 1950:

35.527 million net bbl of crude, plus 9.602 million bbl (403.288 million gallons) totals 45.129 million bbl. In other words, the data here reported is conservative in that net crude plus net NGL reported for 1950 in the 1959 annual report totals 51.6 million bbl, not the 45.129 million bbl estimated here. Unfortunately, Phillips does not report total net NGL for 1946-1949 and we have to rely on a conservative estimate. While do not increase stated figures by the likely multiplier (51.62/45.129) of 1.144.

Cell: M39**Comment: Rick Heede:**

Richfield 1946 rpt: net interest of 8.978 million bbl net production, equally allocated to BP and ConocoPhillips. Net equals 0.794 of grss (11.305 million bbl).

Cell: N39**Comment: Rick Heede:**

Sinclair Oil Corporation Annual Reports for 1950, 1951, 1959, 1965, and 1968 typically shows domestic and international net production of crude oil, NGLS, natural gasoline, and LP (none of which are summed in the reports, but CMS has done so). Sinclair's total liquids net production in 1946 was 40.652 million bbl, rose to 64.736 million bbl in 1959 and to 110.06 million bbl in 1968. Half of this, as explained above, is allocated to BP and half to ConocoPhillips for each company's acquisition of ARCO assets.

Cell: W39**Comment: Rick Heede:**

Phillips Petroleum Company Annual Report for 1950 shows natural gas sales, cf per day. These data are also likely conservative insofar as the shown figure for 1950 (1.382 Bcf per day) was revised up to 1.785 Bcf per day in the 1959 Annual Report, or a revision of plus 29 percent. While such revision is common (and probably reflects acquisitions and mergers or re-statements), we have not revised the data for 1946-1949.

Cell: AA39**Comment: Rick Heede:**

Continental natural gas production is extrapolated backwards based on known 1950 production and the amount of reported crude oil and NGL production for 1946-1949.

Cell: M40**Comment: Rick Heede:**

Richfield Oil Corporation (1956) Annual Report, 1955, p.24-25, shows "production of crude oil--net barrels" for 1946-1955. Half allocated to each BP and ConocoPhillips. Richfield has historically both refined and sold far larger quantities than own production. For example, 1955 net production totaled 20.729 million bbl, refined 44.508 million bbl, and sales totaled 50.876 million bbl.

Cell: AC40

Comment: Rick Heede:

CMS allocates 50 percent of Atlantic, Richfield, and ARCO production to British Petroleum, and the other 50 percent to ConocoPhillips. These companies each acquired significant assets from ARCO, although an asset allocation has not been done; instead we have assumed an equal allocation to each company.

Cell: X41**Comment:** Rick Heede:

What is shown below, however, is all of Atlantic's, Richfield's, and ARCO's natural gas sales. Estimates are allocated equally to BP and ConocoPhillips in the annual total column (Bcf/yr), in this case column AA.

Cell: K43**Comment:** Rick Heede:

Crude and NGL production for 1950-1959 from Phillips Petroleum (1960) Annual Report, p. 8-9.

Cell: O43**Comment:** Rick Heede:

The British American Oil Company (1960) Annual Report 1959, p. 27, shows "crude oil and condensate production (net)" for 1950-1959.

Cell: W43**Comment:** Rick Heede:

Natural gas "sold or consumed" for 1950-1959 from Phillips Petroleum (1960) Annual Report, p. 8-9. Does not report natural gas production.

Cell: X43**Comment:** Rick Heede:

Atlantic's natural gas production estimated for 1950-1959 based on reported crude oil production in relation to the known ratio in 1960.

Cell: AA43**Comment:** Rick Heede:

Continental Oil Company Annual Report 1959, p. 30 (Ten Year Operating Review for 1950-1959), shows annual "natural gas delivered from leases."

Cell: AC43**Comment:** Rick Heede:

Atlantic's natural gas production estimated for 1950-1959 based on reported crude oil production in relation to the known ratio in 1960.

Cell: AF43**Comment:** Rick Heede:

The British American Oil Company (1960) Annual Report 1959, p. 27, shows "gas sales" for 1950-1959 in a chart (no line entries in the operating summary table, hence estimated from line chart).

Cell: F44**Comment:** Rick Heede:

Atlantic (1953) Annual Report for 1952. Data for "crude oil production, bbl/d".

Cell: F46**Comment:** Rick Heede:

Atlantic (1955) Annual Report for 1954. Data for "crude oil production, bbl/d".

Cell: G47**Comment:** Rick Heede:

Richfield also reports substantial crude oil purchases (e.g., 96,738 bbl per day in 1964, up from 70,041 bbl per day in 1955). While much of this oil is produced by Richfield and deducted from gross production as royalty payments, the origination is seldom specified. CMS does not include this oil, instead reporting only net crude oil and NGL production. (The difference between net and gross is ~28,000 bbl per day in 1964.)

Cell: Y47**Comment:** Rick Heede:

Richfield Petroleum reports natural gas sales (not production, net or gross) for 1955 through 1964. No gas production is mentioned or listed in prior years' annual reports.

Cell: AD47**Comment:** Rick Heede:

Richfield Petroleum reports natural gas sales (not production, net or gross) for 1955 through 1964. No gas production is mentioned or listed in prior years' annual reports.

Cell: AE47**Comment:** Rick Heede:

ARCO acquired Sinclair Oil Corporation in 1969, and since half of ARCO is allocated to both BP and Conoco half of Sinclair is also allocated to each BP and Conoco. Also see notes under columns for Atlantic Oil, ARCO, and Richfield Oil.

Cell: F48**Comment:** Rick Heede:

Atlantic (1957) Annual Report for 1956. Data for "crude oil production, bbl per day, net." No discussion of apparent change from total to net production.

Cell: G48**Comment:** Rick Heede:

Richfield Oil Corporation (1965) Annual Report for 1964, pp. 26-27, shows net (as well as gross) production of crude oil, domestic plus foreign, to which we add net NGL production. Net crude equals 0.679 of gross in 1955 and 0.711 of gross in 1964 (which means that we do not estimate carbon emissions from nearly 33 million bbl in 1964, some of which is, however, estimated in company own energy use). Note: Richfield states that "certain figures for prior years are restated to include all subsidiaries," which may account for the net production in 1955 having been significantly increased from 20.729 million bbl to 65.496 million bbl. We do not have data to revise prior years' net production.

Cell: D49**Comment:** Rick Heede:

Continental Oil Company Annual Report 1959, p. 30 (Ten Year Operating Review for 1950-1959), shows annual net production of crude oil (including equity production in Hudson Bay Oil and Gas Ltd) and natural gas liquids, which we sum. Unlike the previous annrpt for 1955, this AnnRpt shows natural gas production.

Cell: AE49**Comment:** Rick Heede:

For natural gas production sources, see Sinclair oil column.

Cell: F50**Comment:** Rick Heede:

Atlantic (1959) Annual Report for 1958. Data for "crude oil production, bbl per day, net."

Cell: F52**Comment:** Rick Heede:

Atlantic (1961) Annual Report for 1960. Data for "crude oil production, bbl per day." No mention of "total" vs "net" production.

Cell: O52**Comment:** Rick Heede:

The British American Oil Company (1964) Annual Report 1963, p. 11, shows "net crude and natural gas liquids produced" for 1959-1963.

Cell: AF52**Comment:** Rick Heede:

The British American Oil Company (1964) Annual Report 1963, p. 11, shows "net natural gas produced and sold" (not gross) for 1959-1963.

Cell: D53**Comment:** Rick Heede:

Continental Oil Company Annual Report 1969, p. 41, shows "net petroleum liquids, worldwide" for 1960-1969 (includes NGL).

Cell: K53

Comment: Rick Heede:

OGJ (1998) databook data for 1996: 47.8 million bbl OGJ (1999) databook data for 1996 at 87.2 million bbl. Conservatively, we use the lower datum.

Cell: V53**Comment:** Rick Heede:

Continental Oil Company Annual Report 1969, p. 41, shows "natural gas deliveries, US and Canada" which we sum, for 1960-1969, in millions of cubic feet per day.

Cell: W53**Comment:** Rick Heede:

Phillips Petroleum gas production is interpolated for 1960-1969.

Cell: X53**Comment:** Rick Heede:

Gas sales data first appeared in Atlantic's 1961 annual report with sales data for 1960. No trace of previous years' sales. Data not reported for production, but only sales.

Cell: F54**Comment:** Rick Heede:

Atlantic (1963) Annual Report for 1962. Data for "crude oil production, bbl per day." No mention of net prod'n.

Cell: M55**Comment:** Rick Heede:

Richfield's net production from 1962 through 1964 is accounted for in the AtlanticRichfield (ARCO) annual report for 1966. Hence we exclude Richfield's production for 1962 (91.556 million bbl), 1963 (92.093 million bbl), and 1964 (88.017 million bbl) – half of each allocated to BP and Conoco.

Cell: X55**Comment:** Rick Heede:

Natural gas sales in North America and Foreign reported in separate columns (previous reports only reported Gas sales in North America (e.g., 568.2 million cf / day in 1962). Data for 1962-1966 from Atlantic Refining (1967) Annual Report 1966, North America only:

1962: 568.2 million cf / day
623.8 million cf / day
642.7 million cf / day
716.5 million cf / day

Cell: O56**Comment:** Rick Heede:

The British American Oil Company (1968) Annual Report 1967, p. 33, shows "net crude and natural gas liquids" for 1963-1967; we sum Canadian and US production 1963 to mid-1966; predominantly Canadian prod'n and increasing year by year.

Cell: AF56**Comment:** Rick Heede:

The British American Oil Company (1968) Annual Report 1967, p. 33, shows "net natural gas produced and sold" (not gross) for 1963-1967; we sum Canadian and US production 1963 to mid-1966.

Cell: X57**Comment:** Rick Heede:

"Natural gas sales, North America." Atlantic Annual report for 1964.

Cell: X58**Comment:** Rick Heede:

CMS assumes that Atlantic Richfield combines Atlantic & Richfield natural gas sales 1965 fwd; previous years' sales are for each company separately.

Cell: F59**Comment:** Rick Heede:

Data for 1962-1966 in Atlantic Refining (1967) Annual Report for 1966. This report shows "North America (net) and "Foreign gross" as well as "net", but totals North America (net) and Foreign (gross). CMS instead reports North America (net) plus "Foreign (net)." The reason or protocol for such obscure reporting by a major oil company is unknown. We use this revised sum for all years 1962 through 1966, previous incomplete reporting notwithstanding.

Previous data for 1962-1966:

1962: 179.4 thousand bbl per day (1966 report: 275.4 k bbl per day)
182.4 thousand bbl per day
213.7 thousand bbl per day
222.6 thousand bbl per day
1966: 200.6 thousand bbl per day (1966 report: 302.7 k bbl per day).

Cell: F60**Comment:** Rick Heede:

Atlantic Richfield (1969) Annual Report for 1968. Data combines North America (net) and Foreign (net) production.

Cell: O60**Comment:** Rick Heede:

Gulf Canada (1980) Annual Report 1979, p. 28, shows "net crude and natural gas liquids" for 1967-1971.

Cell: X60**Comment:** Rick Heede:

Atlantic Richfield (1069) Annual Report 1968. Unlike previous reports, which included foreign natural gas sales, this reports only North America.

Cell: AF60**Comment:** Rick Heede:

Gulf Canada (1980) Annual Report 1979, p. 28, shows "net natural gas produced and sold" (not gross) for 1967-1971.

Cell: F62**Comment:** Rick Heede:

Atlantic Richfield (1971) Annual Report for 1970. "Crude oil and NGL production, in bbl per day (net)" summing North American and Foreign data (not summed in report).

Cell: D63**Comment:** Rick Heede:

Continental Oil Company Annual Report 1979, p. 44, shows "petroleum liquids production, worldwide" for 1970-1979 (includes NGL). We assume this is net production, but not defined.

Cell: E63**Comment:** Rick Heede:

Liquids production for 1970-1979 from Phillips Petroleum (1980) AnnRpt, p.53.

Cell: K63**Comment:** Rick Heede:

Annual production from column "E" (Phillips, kbblday converted to million bbl/yr). Phillips annual reports. We have not replaced the 1984 datum from Oil & Gas Journal (=114 million bbl) with that reported in Phillips Petroleum annual report 460 kbbld (= 167.9 million bbl/yr).

Cell: V63**Comment:** Rick Heede:

Continental Oil Company Annual Report 1979, p. 44, shows "natural gas deliveries, worldwide" for 1970-1979, in millions of cubic feet per day.

Cell: W63**Comment:** Rick Heede:

Gas production 1970-1971 from Phillips (1980) AnnRpt.

Cell: AN63**Comment:** Rick Heede:

Conoco Inc Annual Report for 1979, p. 45, shows annual steam and metallurgical coal production for 1970-1979. CMS copies of Conoco and Continental Oil Company's earlier annual reports are incomplete and do not show coal production, although there likely was coal produced.
Conoco's coal production (and carbon emissions therefrom) are entered on a separate coal production worksheet and summarized to CoalSum.xls therefrom.

Cell: F64**Comment:** Rick Heede:

Atlantic Richfield (1973) Annual Report for 1972. "Crude oil and NGL production, in bbl per day (net)" summing North American and Foreign data (not summed in report).

Cell: O64**Comment:** Rick Heede:

Gulf Oil Canada (1976) Annual Report 1975, p. 26. Both net and gross crude oil and NGL is shown; we report net crude plus NGL production here (1974 net = 0.713 of gross, 1971 net = 0.863 of gross).

Cell: AF64**Comment:** Rick Heede:

Gulf Canada (1976) Annual Report 1975, p. 26. Both net and gross reported (here and earlier in Bcf); we report Net production here (typ 0.785 to 0.898 of gross).

Cell: W65**Comment:** Rick Heede:

Natural gas production data for 1972-1981 from Phillips Petroleum Company (1982) AnnRpt, p. 72-3.

Cell: F66**Comment:** Rick Heede:

Atlantic Richfield (1975) Annual Report for 1974. "Crude oil and NGL production, in bbl per day (net)" summing United States and Foreign data (not summed in report).

Cell: X66**Comment:** Rick Heede:

Atlantic Richfield (1975) Annual Report for 1974. Natural gas sales US only. No mention of foreign production or sales.

Cell: F68**Comment:** Rick Heede:

Atlantic Richfield Company (1977) Annual Report for 1976. "Crude oil and NGL production, in bbl per day (net)" summing United States and Foreign data (not summed in report).

Cell: O68**Comment:** Rick Heede:

Gulf Oil Canada (1980) Annual Report 1979, p. 40, Both net and gross crude oil and NGL is shown (in thousand cubic metres per year); we report net crude plus NGL production here; 1979 net of 5.379 million m³ = 0.685 of 7.858 million m³ gross.
Conversion: 1 cubic meter of crude oil equals 6.3 bbl.

Cell: X68**Comment:** Rick Heede:

Atlantic Richfield (1977) Annual Report for 1976. "Natural gas sales United States, million cf per day."

Cell: AF68**Comment:** Rick Heede:

Gulf Canada (1980) Annual Report 1979, p. 40, shows net and gross natural gas production. Net is typ 0.714 to 0.785 of gross. We report net production, and convert from million cubic meters per year (e.g, 1979 = 2,854) to billion cubic feet at 35.31466 cf/m³ (1979 = 100.8 Bcf).

Cell: F69**Comment:** Rick Heede:

ARCO annual report 1980 shows "crude oil and NGL production - net bbl per day" for 1976-1980.
CMS shows total ARCO liquids production in this column, but attributes half of the total to each BP and ConocoPhillips in the ARCO column reporting total annual production in million bbl yr.

Cell: X69**Comment:** Rick Heede:

ARCO annual report 1980, p. 54, shows "natural gas sales, domestic and foreign, million cf per day," for 1976 - 1980.

Cell: E73**Comment:** Rick Heede:

Net crude oil and NGL production 1980-84 from Phillips (1985) AnnRpt, p. 71.

Cell: J73**Comment:** Rick Heede:

Coal shipment data (which we take as equivalent to production) for 1984-1987 from ARCO (1988) Annual Report 1987, p. 60. Half of these quantities are allocated to BP and half to

Cell: O73**Comment:** Rick Heede:

We do not have Gulf Oil annual reports covering 1980 through 1987 and we interpolate between known oil + NGL production in 1979 and Oil & Gas Journal's 1988 estimate.

Cell: AF73**Comment:** Rick Heede:

In order to interpolate between known 1979 gas production from company annual reports and Oil & Gas Journal's estimate in 1988, we have entered the result of the 1979 calculation, as follows =2854*35.31466/1000 = 100.788 Bcf.

Cell: F74**Comment:** Rick Heede:

ARCO annual report 1983 shows "crude oil and NGL production - net bbl per day." CMS shows total ARCO liquids production in this column, but attributes half of the total to each BP and ConocoPhillips in the ARCO column reporting total annual production in million bbl yr.

Cell: X74**Comment:** Rick Heede:

ARCO annual report 1983, p. 1, shows "natural gas sales, million cf per day," for 1981-1983.

Cell: AM75**Comment:** Rick Heede:

Keystone Coal Industry Manual does not mention ARCO Coal Company prior to 1983.

Cell: AM76**Comment:** Rick Heede:

Coal shipment data (which we take as equivalent to production) for 1984-1987 from ARCO (1988) Annual Report 1987, p. 60. Half of these quantities are allocated to BP and half to Conoco.

Cell: F77**Comment:** Rick Heede:

ARCO data

Cell: J77**Comment:** Rick Heede:

Data from Oil & Gas Journal, various years.

Cell: K77**Comment:** Rick Heede:

Data discontinuity, possible due to this year's production being from a table (Top US and World Liquids Production) in OGI 400, and NOT from the standard long tables. Verify.

Cell: X77

Comment: Rick Heede:
ARCO annual report 1986, Highlights, shows "natural gas sales, million cf per day," for 1984-1986.

Cell: AA78

Comment: Rick Heede:
Oil & Gas Journal production estimates (OGJ100).

Cell: F80

Comment: Rick Heede:
ARCO data.

Cell: X80

Comment: Rick Heede:
ARCO annual report for 1988, p.1 Highlights, shows "natural gas sales, million cf per day," for 1987 - 1988.

Cell: AM81

Comment: Rick Heede:
Atlantic Richfield Annual Report for 1992, p. 1, shows "annual coal shipments" for 1988-1992.
Keystone Coal Industry Manual for 1993, p. 372, shows 1991 production data for ARCO at 32.6 million tons, and 26.9 million tons in 1988.

Cell: F82

Comment: Rick Heede:
ARCO annual report 1993 shows "crude oil nd NGL production - net bbl per day" for 1989-1993.

CMS shows total ARCO liquids production in this column, but attributes half of the total to each BP and ConocoPhillips in the ARCO column reporting total annual production in million bbl yr.

Cell: L82

Comment: Rick Heede:
ARCO annual report 1993 shows domestic and foreign net liquids production for 1989-2003; these data confirm the O&GJ data entered here. Note that ARCO production is equally divided to BP and ConocoPhillips.

Cell: X82

Comment: Rick Heede:
ARCO annual report for 1993, p.1 Highlights, shows "natural gas sales, domestic and foreign, in million cf per day," for 1989 -1993. These years, as well as years reported above, is all of Atlantic's, Richfield's, and ARCO's natural gas sales. Estimates are allocated equally to BP and ConocoPhillips in the annual total column (Bcf/yr), in this case column AA.

Cell: D84

Comment: Rick Heede:
Conoco oil and gas production in thousand bbl from Dupont SEC Form 10-K for 1994, p. 6. www.sec.gov/Archives/edgar/data/30554/0000950109-94-000508.txt

"Excludes royalty volumes produced and marketed by the company:

	1993	1992	1991
Petroleum Liquids (MBD).....	37	38	40
Natural Gas Deliveries (MMCFD).....	6	10	9"

Cell: E84

Comment: Rick Heede:
Additional production deducted from net production and declared as royalty production, DuPont SEC Form 10-K, p. 6.
We cite this data set simply to inform the quantitative difference between reported net and (typically) unreported gross production.

Cell: V84

Comment: Rick Heede:
Conoco oil and gas production in thousand bbl from Dupont SEC Form 10-K for 1994, p. 6. www.sec.gov/Archives/edgar/data/30554/0000950109-94-000508.txt

Cell: J86

Comment: Rick Heede:
DuPont/Conoco's (1994) SEC Form 10-K, p. 6, shows net production of 367kbbld = 134 million bblyr, plus royalty production of 37kbbld = 13.5 million bblyr; sum = 147.5 million bbl for 1993.
OGJ (1995) Databook shows 135 million bbl for 1993, and we show OGJ data for consistency. In addition, OGJ typically reports net production. Similarly, we use OGJ data for 1991 and 1992 above.

Cell: AC87

Comment: Rick Heede:
Oil & Gas Journal (various) OGJ100 or OGJ200 natural gas production estimates.

Cell: AM87

Comment: Rick Heede:
EIA Coal Industry Annual 1994, p. 23.

Cell: AM88

Comment: Rick Heede:
EIA Coal Industry Annual 1995, p. 24.

Cell: AM89

Comment: Rick Heede:
EIA Coal Industry Annual 1997, p. 23, ARCO 51.013 million tons.

Cell: AM90

Comment: Rick Heede:
No data in Keystone Coal Industry Manual. ARCO 1997 coal production from EIA Coal Industry Annual 1997, p. 23.

Cell: AC91

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.
Oil & Gas Journal Data Book (our primary source for oil and gas production from 1988 through 2003) reports net production.
Crude production includes natural gas liquids (NGL) unless noted.
On this worksheet we report extractive data for each company or state-owned enterprise. Three columns under crude oil and natural gas allow for data reported in one of three formats (e.g., thousand barrels per day, or million barrels per year, or million tonnes per year). Coal is normally reported in U.S. or metric tonnes per year.
Note: the carbon content of the extracted resources is adjusted by a number of factors before emissions estimates are made in the worksheet 1 to the left. Most important is the subtraction of the fraction typically sequestered in petrochemicals and other non-combusted uses such as road oils, waxes, lubricants, greases, etc. See the comment for each extracted resource for detailed discussions of the combusted vs sequestered fractions.

Cell: AM91

Comment: Rick Heede:
Keystone (1999) states that "during 1998, Arch Coal purchased ARCO Coal Company."

Cell: L92

Comment: Rick Heede:
We allocate 50 percent of AtlanticRichfield from 1967 through 2000 to BP (the other 50 percent is allocated to Phillips Petroleum -- now ConocoPhillips -- which acquired ARCO's Prudhoe Bay operations in Alaska in 2000).

ARCO 1999 production (OGJ 2000): 228 million bbl, of which we allocate half to BP and half to ConocoPhillips.

Cell: AC92

Comment: Rick Heede:
We allocate 50 percent of ARCO to BP and 50 percent to Phillips Petroleum, which acquired ARCO in 1999.
1999 ARCO total gas production = 868 Bcf.

Cell: D93

Comment: Rick Heede:
Oil and gas production data from Energy Intelligence (2003) Top 100: Ranking the World's Oil Companies, p. 126.

Cell: V93

Comment: Rick Heede:
Oil and gas production data from Energy Intelligence (2003) Top 100: Ranking the World's Oil Companies, p. 126.

Cell: K95

Comment: Rick Heede:
Phillips' merger with Conoco was completed in August, 2002. We assume Phillips' crude oil production at one-half the previous year's level, although the specific accounting is not clear.

Cell: D97

Comment: Rick Heede:
ConocoPhillips Databook for 2004, global summary, p. 3: 905 thousand bbl per day crude oil plus 84 thousand bbl per day of NGLs per day. Equity production in Lukoil is not included (reason or quantity is unknown).

Cell: V97

Comment: Rick Heede:
ConocoPhillips Databook for 2004, global summary, p. 3: 3,317 million cf per day.

Cell: D98

Comment: Rick Heede (Dec09):
ConocoPhillips Annual Rpt 2006, page 1. This adds worldwide crude oil production (in 2006: 972 mmbbl per day), world NGL (136 mmbbl per day), LUKOIL investment production (401 mmbbl per day), and world syncrude production (21 mmbbl per day). CMS excludes "NGL extracted - Midstream" (209 mmbbl per day in 2006 vs 195 in 2005), which should, perhaps, be added. CMS uses this data for 2005 and 2006, rather than the lower OGJ data (449 million bbl in 2005 and 534 million bbl in 2006).

Cell: V98

Comment: Rick Heede (Dec09):
ConocoPhillips Annual Report 2006, page 1. This yields annual production of 1.19 and 1.81 Tcf in 2005 and 2006, respectively, lower than that reported in OGJ200 (1.36 Tcf and 2.07 Tcf, respectively). CMS applies the AnnRpt data.

Cell: D100

Comment: Rick Heede (Dec09):
ConocoPhillips Annual Rpt 2008, page 1. This adds worldwide crude oil production (in 2008: 806 mmbbl per day), world NGL (153 mmbbl per day), LUKOIL investment production (445 mmbbl per day), and world syncrude production (22 mmbbl per day). CMS excludes "NGL extracted - Midstream" (188 mmbbl per day), which should, perhaps, be added. CMS uses this data for 2007 and 2008, rather than the lower OGJ data.

Cell: V100

Comment: Rick Heede (Dec09):
ConocoPhillips Annual Report 2008, page 1. This yields annual production of 1.86 and 1.77 Tcf in 2007 and 2008, respectively, lower than that reported in OGJ200 (2.11 Tcf and 2.10 Tcf, res. CMS applies the AnnRpt data.

Cell: Y101

Comment: Rick Heede (Feb10):
ConocoPhillips: • 2/10/10 - Heede: Total GHG 2008 of 64.3 million tonnes (up 1.4 percent): 80.6% global ops, 9.7% imported electricity, 6.2% from methane, and 3.5% from imported steam. Flaring: 30.3 Bcf (down from 36.1 Bcf in 2007); 74% of flaring in E&P, 23% in refining, and 3% other. Joined World banks GGFR partnership in 2007. No details on methane, joined EPA Gas STAR. CMS: relative to 2008 Product emissions (203 MtCO₂ oil + 103 MtCO₂ gas direct) relative to company emissions: 64.3 MtCO₂e / 306 MtCO₂ = 21.0 percent. Also see their CDP submission.
Re CP's CDP rpt: Page 9: CP "produced 4,847 million cf/day of gas in 2008. • Combusting all that natural gas would produce approximately 97 million metric tons of CO₂. • That volume of natural gas also has an energy content of approximately 1,919 GJ • A volume of coal of about 90 million short tons would have the equivalent energy content • 90 million short tons of bituminous coal would produce about 200 million metric tons." i.e., CP/EIA NG conversion factors are lower, since CMS has 103 MtCO₂ for CP's 2008 gas prod, not 97 MtCO₂.
Page 10: COP: "Normalized per unit of throughput, refining emissions are about 33,177 tonnes CO₂ equivalent per million barrels of hydrocarbon refined. Normalized E&P and Gas Processing GHG emissions are about 19,253 tonnes per million barrels of oil equivalent produced."