

Natural gas production data

Richard Heede
Climate Mitigation Services
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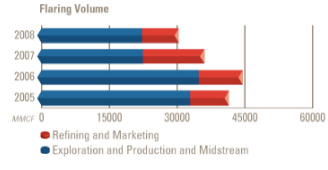
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ConocoPhillips, USA

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 1946-2008	Phillips Petroleum Co 1950-2001	AtlanticRichfield (50% 1967-1999)	Richfield Oil 1924-1966	Sum (million cf/day)	Continental 1946-2008	Phillips Petroleum Co 1917-2002	AtlanticRichfield (50% 1967-2000)	Richfield Oil 1924-1966	Sinclair Oil Corp 1946-1968 (acq by ARCO 1969)	Gulf Canada 1950-2001	Burlington Resources 2006-	Total	

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Year	Phillips	Atlantic (half to Conoco)	Richfield	Continental	Sum
1923					94
1924					103
1925					114
1926					125
1927					137
1928					151
1929					166
1930					182
1931					200
1932					220
1933					241
1934					265
1935					228
1936					241
1937					254
1938					267
1939					280
1940					296
1941					312
1942					328
1943					441
1944	941.0			97.5	470
1945	996.2			106.6	508
1946	1,069.2			113.2	535
1947	1,146.0			119.9	562
1948	1,758.5			136.4	698
1949	2,072.9			147.8	846
1950	2,074.1			150.7	996
1951	2,072.9			144.2	1,140
1952	2,074.1			140.9	1,284
1953	2,059.9			144.2	1,428
1954	2,219.5			147.8	1,572
1955	2,296.9			127.6	1,716
1956	2,386.1			136.4	1,860
1957	2,576.4			136.1	2,004
1958	2,606.9			140.7	2,148
1959	2,798.9			161.1	2,292
1960	502.0			183.2	2,436
1961	492.0			179.6	2,580
1962	576.0			210.2	2,724
1963	714.0			260.6	2,868
1964	800.0			292.0	3,012
1965	829.0			302.6	3,156
1966	885.0			323.0	3,300
1967	912.0			332.9	3,444
1968	991.0			361.7	3,588
1969	1,071.0			390.9	3,732
1970	1,233.0			450.0	3,876
1971	1,271.0			463.9	4,020
1972	1,395.0			509.2	4,164
1973	1,522.0			555.5	4,308
1974	1,617.0			590.2	4,452
1975	1,551.0			566.1	4,596
1976	1,679.0			586.2	4,740
1977	1,579.0			576.3	4,884
1978	1,504.0			549.0	5,028
1979	1,472.0			537.3	5,172
1980	1,497.0			504.2	5,316
1981	1,388.0			471.2	5,460
1982	1,260.0			438.1	5,604
1983	1,266.0			405.1	5,748
1984	1,288.0			372.0	5,892
1985				339.0	6,036
1986				306.0	6,180
1987				273.0	6,324
1988				240.0	6,468
1989				207.0	6,612
1990				174.0	6,756
1991	1,130			141.0	6,900
1992	1,180			108.0	7,044
1993	1,311			75.0	7,188
1994				42.0	7,332
1995				9.0	7,476
1996					7,620
1997					7,764
1998					7,908
1999					8,052
2000					8,196
2001					8,340
2002					8,484
2003					8,628
2004					8,772
2005					8,916
2006					9,060
2007					9,204
2008					9,348
2009					9,492
2010					9,636
2011					9,780
2012					9,924
2013					10,068
2014					10,212
2015					10,356
2016					10,500
2017					10,644
2018					10,788
2019					10,932
2020					11,076
2021					11,220
2022					11,364
2023					11,508
2024					11,652
2025					11,796
2026					11,940
2027					12,084
2028					12,228
2029					12,372
2030					12,516
2031					12,660
2032					12,804
2033					12,948
2034					13,092
2035					13,236
2036					13,380
2037					13,524
2038					13,668
2039					13,812
2040					13,956
2041					14,100
2042					14,244
2043					14,388
2044					14,532
2045					14,676
2046					14,820
2047					14,964
2048					15,108
2049					15,252
2050					15,396

Coal & Supplementary data

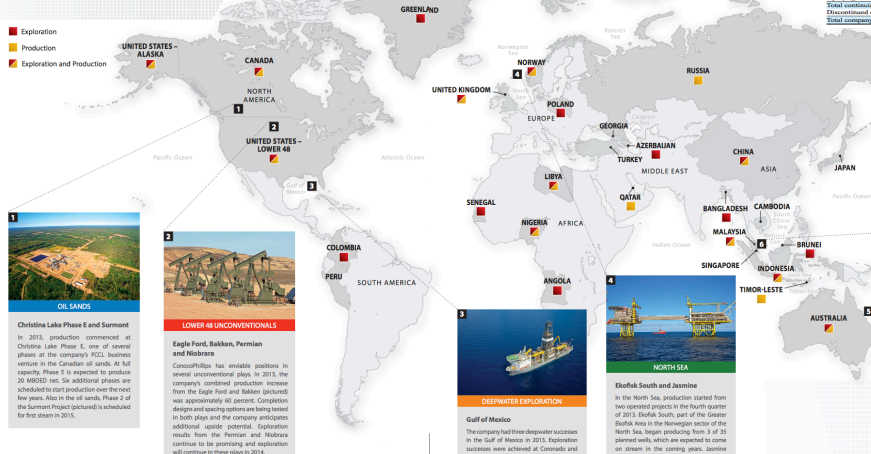
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ConocoPhillips, USA

Coal						
Year	Company 1 production	Company 2 production	Sum production	Company 1 production	Company 2 production	Sum production
	Million tons/yr	Million tons/yr	Million tons/yr	Million tonnes/yr	Million tonnes/yr	Million tonnes/yr
	Atlantic 1950-66, ARCO 1967-1999	Continental & Conoco				Total

Global Operations and Locations



OIL SANDS
Christina Lake Phase 2 and Summit
In 2013, production commenced at Christina Lake Phase 2, one of several phases at the company's FCCI business venture in the Canadian oil sands. At full capacity, Phase 2 is expected to produce 20 MBOED. Also in this oil sands, Phase 2 of the Summit Project (included) is scheduled for first steam in 2015.

LOWER-48 UNCONVENTIONALS
Eagle Ford, Bakken, Permian and Helisea
ConocoPhillips has enabled positions in several unconventional plays. In 2013, the company's combined production increase from the Eagle Ford and Bakken basins was approximately 60 percent. Completion design and spacing options are being tested in both plays and the company anticipates additional upside potential. Exploration results from the Permian and Helisea continue to be promising and exploration will continue in these plays in 2014.

DEEPWATER EXPLORATION
Gulf of Mexico
The company had three deepwater successes in the Gulf of Mexico in 2013. Exploration successes were achieved at Conoco and

Year	Consolidation Coal Company owned by Continental Oil from 1966 to 1998	Coal prod'n million tons/yr	Conoco acquired Consolidated Coal	million tonnes/yr
1966	See Conoco Coal for complete coal prod'n history	57.37	50.3	50.3
1967	57.37	57.7	52.3	52.3
1968	57.37	59.9	54.3	54.3
1969	get earlier rpts	60.9	55.2	55.2
1970	57.37	64.1	58.1	58.1
1971	49.02	54.8	49.7	49.7
1972	58.51	64.9	58.9	58.9
1973	54.42	60.5	54.9	54.9
1974	47.09	51.8	46.9	46.9
1975	49.17	54.9	49.8	49.8
1976	ARCO Coal acq by Arco Coal in 1998	50.61	50.7	50.7
1977	43.75	45.9	43.5	43.5
1978	38.33	41.8	37.9	37.9
1979	All prod'n attrib to Arco Coal	47.18	50.1	44.4
1980	49.0	49.0	44.4	44.4
1981	42.1	42.1	38.2	38.2
1982	47.0	47.0	42.6	42.6
1983	42.2	42.2	38.3	38.3
1984	26.3	46.7	42.3	42.3
1985	29.8	42.7	38.7	38.7
1986	27.2	41.5	37.7	37.7
1987	26.1	52.5	47.6	47.6
1988	32.4	54.9	49.8	49.8
1989	39.4	53.5	48.5	48.5
1990	38.3	54.6	49.5	49.5
1991	41.6	55.2	50.1	50.1
1992	39.8	45.6	51.1	51.1
1993	37.5	45.6	41.4	41.4
1994	38.4	70.5	64.0	64.0
1995	45.7	69.1	62.7	62.7
1996	51.0	70.1	63.6	63.6
1997	46.4	72.8	66.1	66.1
1998	no data	73.2	66.4	66.4

Consolidated coal production attributed to CONSOL Energy not Conoco, to avoid double-counting

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

Total	539	495	1,820	-	-	1,651
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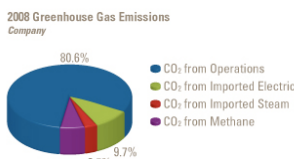
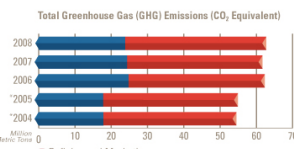
Net Production	2016	2015	2014
	Thousands of Barrels Daily		
Crude Oil			
Consolidated operations			
Alaska	165	158	162
Lower 48	195	206	188
United States	360	364	350
Canada	7	12	11
Asia Pacific/Middle East	97	100	96
Other areas	2	1	2
Total consolidated operations	666	687	676
Equity affiliates	14	14	15
Asia Pacific/Middle East	14	14	15
Other areas	0	0	0
Total equity affiliates	14	14	15
Total consolidated operations	680	695	695
Discontinued operations	0	0	0
Total operations	680	695	695
Natural Gas Liquids			
Consolidated operations			
Alaska	12	13	13
Lower 48	80	84	87
United States	100	107	110
Canada	2	2	2
Europe	7	9	10
Asia Pacific/Middle East	0	0	0
Total consolidated operations	197	209	212
Equity affiliates - Asia Pacific/Middle East	8	8	8
Total equity affiliates	105	117	120
Total consolidated operations	302	326	332
Discontinued operations	0	0	0
Total operations	302	326	332
Bitumen			
Consolidated operations - Canada	88	13	12
Equity affiliates - Canada	118	118	117
Total operations	206	131	129
Net Income			
Consolidated operations			
Alaska	35	42	40
Lower 48	3,219	3,472	3,493
United States	3,254	3,514	3,533
Canada	459	475	441
Europe	194	215	241
Asia Pacific/Middle East	1	1	1
Africa	1	1	1
Total consolidated operations	3,949	4,252	4,248
Equity affiliates - Asia Pacific/Middle East	189	138	105
Total equity affiliates	3,860	4,096	3,943
Discontinued operations	0	0	0
Total operations	3,860	4,096	3,943

ConocoPhillips Form 10-K, 2016, page 159

FINANCIAL HIGHLIGHTS	2013	2012	2011
	(\$ Millions, Except as Indicated)		
Total revenues and other income	\$ 58,248	62,004	66,069
Net income attributable to ConocoPhillips (earnings)	\$ 9,156	8,428	12,426
Earnings per share of common stock - diluted (dollars)	\$ 7.38	6.72	8.97
Net cash provided by continuing operations	\$ 15,801	13,458	13,953
Capital program**	\$ 16,918	15,722	12,947
Repurchase of company common stock	\$ -	5,098	11,123
Dividends paid on company common stock	\$ 3,324	3,278	3,632
Total assets	\$118,057	117,144	153,230
Total debt	\$ 21,662	21,725	22,623
Total equity	\$ 52,492	48,427	65,749
Percent of total debt to capital	29%	31	26
Common stockholders' equity	\$ 52,090	47,987	65,239
Common stockholders' equity per share - book value (dollars)	\$ 42.49	39.33	50.74
Cash dividends per common share (dollars)	\$ 2.70	2.64	2.64
Closing stock price per common share (dollars)	\$ 70.65	67.99	72.87
Common shares outstanding at year end (in thousands)	1,225,939	1,220,017	1,285,670
Average common shares outstanding (in thousands)			
Basic	1,230,963	1,243,799	1,375,035
Diluted	1,239,803	1,253,093	1,387,100
Return on capital employed	10%	11	13

OPERATING HIGHLIGHTS	2013	2012	2011
Crude oil production (MBD)	599	618	650
Natural gas liquids production (MBD)	159	160	149
Bitumen production (MBD)	109	93	67
Natural gas production (MMCF/D)	4,068	4,245	4,516
Total (MMBOE)	1,245	1,378	1,619
Average Realized Prices**			
Average crude oil price (per barrel)	\$ 103.51	105.98	105.87
Average natural gas liquids price (per barrel)	\$ 40.79	45.55	54.71
Average bitumen price (per barrel)	\$ 53.27	53.91	62.56
Average natural gas price (per thousand cubic feet)	\$ 6.00	5.38	5.67
Average total price (per BOE)	\$ 67.62	67.68	68.93
Proved Reserves**			
Crude oil reserves (MMBOE)	2,749	2,779	2,741
Natural gas liquids reserves (MMBOE)	744	694	721
Bitumen reserves (MMBOE)	2,030	1,900	1,439
Natural gas reserves (BCF)	20,388	19,614	20,916
Total (MMBOE)	8,921	8,667	8,387
Organic Reserve Replacement Ratio***	179%	156	120
Acreage**			
Net developed acreage (millions of acres)	11.3	12.2	12.3
Net undeveloped acreage (millions of acres)	42.3	44.2	37.8
Total (millions of acres)	53.6	56.4	50.1

**Includes discontinued operations and excludes \$2.810 million FCCI program.
***Organic reserve replacement ratio includes the impact of purchases and sales.
Annual Report 2013.



ConocoPhillips GHG emissions data from company website

Summary Operating Statistics	2013	2012	2011
Average Net Production			
Crude oil (MBD)**	605	595	581
Natural gas liquids (MBD)	156	159	156
Bitumen (MBD)	151	129	109
Natural gas (MMCFD)**	4,060	3,943	3,939
Total Production (MBOED)***	1,482	1,527	1,561
Average Sales Prices			
Crude oil (per barrel)	\$ 103.32	105.72	105.82
Natural gas liquids (per barrel)	41.42	46.36	55.73
Bitumen (per barrel)	53.27	53.91	62.56
Natural gas (per thousand cubic feet)	6.11	5.48	5.80

Worldwide Exploration Expenses
General and administrative, geological and geophysical, and lease rentals \$ 789 626 569
Leasehold impairment 268 155 310
Dry holes 1,232 1,500 1,038

****Includes discontinued operations.
**Thousands of barrels per day.
***Thousands of cubic feet per day. Aggregates quantities available for sale and excludes gas equivalent of natural gas liquids included above.
****Thousands of barrels of oil equivalent per day.
ConocoPhillips Form 10-K, page 46.

Summary Operating Statistics	2015	2014	2013
Average Net Production			
Crude oil (MBD)**	605	595	581
Natural gas liquids (MBD)	156	159	156
Bitumen (MBD)	151	129	109
Natural gas (MMCFD)**	4,060	3,943	3,939
Total Production (MBOED)***	1,589	1,540	1,502

Summary Operating Statistics	2017	2016	2015
Average Net Production			
Crude oil (MBD)*	599	598	605
Natural gas liquids (MBD)	111	145	156
Bitumen (MBD)	122	183	151
Natural gas (MMCFD)**	3,270	3,857	4,060
Total Production (MBOED)***	1,377	1,569	1,589

ConocoPhillips Form 10-K for 2015, page 45, and 2017, page 41.

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 second quarter of 2012.

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/conoco/Pages/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 kb/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: N37**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 gross (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 anrprt for 1955, this AnrRpt 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, kbbbl/day 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 kbb/d (= 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 OGJ 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 and 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/d from Dupont SEC Form 10-K for 1994, p. 6. www.sec.gov.edgar:
 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/d from Dupont SEC Form 10-K for 1994, p. 6. www.sec.gov.edgar:
 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 367kbb/d = 134 million bbl/yr, plus royalty production of 37kbb/d = 13.5 million bbl/yr; 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:
 ConocoPhillips 10-K for 2002, data for 2000 and 2001.
 2001: Crude oil net production consolidated 561 kbbpd, equity affiliates 2 kbbpd, NGL 35 kbbpd, totals 598 kbbpd.

Oil and gas production data from Energy Intelligence (2003) Top 100: Ranking the World's Oil Companies, p. 126. Liquids production of 1,158 kbbpd in 2000, and 1,019 kbbpd in 2001.

Cell: V93

Comment: Rick Heede:
ConocoPhillips 2002 Form 10-K, page 154, net production 2000-2002.

Cell: W93

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

Cell: D95

Comment: Rick Heede:
ConocoPhillips 10-K 2004, page 178, using data for 2002-2004.
2004 Net Production Crude Oil: total consolidated 797 kbbpd, equity affiliates 146 kbbpd, NGL 84 kbbpd.
Nat Gas "available for sale": 3,330 Mcfpd.

Cell: H95

Comment: Rick Heede:
Jan 17: in quantifying Lukoil prod for UCS project we gather data on Lukoil prod from ConocoPhillips Form 10-Ks. The purpose is calculate carbon-intensity, and since CP estimate emissions from "Consolidated operations" only, and excludes "equity affiliates," we have deleted Lukoil crude oil production. However, other minor equity affiliated production should be considered.

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: D98

Comment: Rick Heede (Dec09):
ConocoPhillips 10-K for 2007, page 184; data for 2006 and 2005:
2006 Net production, Crude Oil: consolidated 856 kbbpd, equity affiliates 476 kbbpd, NGL 136 kbbpd.

Cell: V98

Comment: Rick Heede:
ConocoPhillips 2007 Form 10-K, page 184.

Cell: D100

Comment: Rick Heede (Dec10):
ConocoPhillips 10-K for 2009, page 152, data for 2007 - 2009.
In 2009: Net production, crude oil and NGL: total consolidated operations 913 kbbpd, plus equity affiliates 442 kbbpd, plus synthetic oil 23 kbbpd, plus bitumen 50 kbbpd.
2009 gas: 5,157 Mcfpd.

Cell: H100

Comment: Rick Heede:
Russia (Affiliated prod) 2007-2009 from CP 10-K, page 152.

Cell: V100

Comment: Rick Heede:
ConocoPhillips 2009 Form 10-K, page 152.

Cell: W101

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."

Cell: D103

Comment: Rick Heede:
ConocoPhillips AnnRpt 2010, page 7: E&P Worldwide crude oil and NGL production (913 kbbpd) plus bitumen (59 kbbpd) plus synthetic oil (12 kbbpd) plus 90% of LUKOIL net production assumed to be crude (10% gas), total 913+59+12+(326 kboepd*0.9) = 1,277 kbbpd = 466 Mbpv.

Cell: H103

Comment: Rick Heede:
ConocoPhillips 10-K for 2012, page 152 / Statistics: Total company crude oil: 1,047 k bbl / day, of which Russia (equity affiliates) is 336 k bbl / d. Russian prod decreases to 29 kbbpd in 2011, and to 13 kbbpd in 2012.

Cell: V103

Comment: Rick Heede:
ConocoPhillips Form 10-K for 2012, page 152, net production.

Cell: Y103

Comment: Rick Heede:
ConocoPhillips 10-K for 2012, page 152 / Statistics: data for 2010: Total company natural gas for totsal company: 4,860 million cf/day , of which (equity affiliates) Russia 254 Mcfpd. Russian prod decreases to 0 in 2011.

Cell: D104

Comment: Rick Heede:
ConocoPhillips 10-K for 2012. 2010 and 2011 data.
2011 net production crude oil: consolidated 577 kbbpd, equity affiliates 45 kbbpd, discontinued operations 28 kbbpd, NGL 149, synthetic oil zero bitumen 67 kbbpd.

Cell: D106

Comment: Rick Heede:
ConocoPhillips 10-K for 2015, page 155. Using data for 2013-2015.
2015 net production crude oil: consolidated 587 kbbpd, equity affiliates 18 kbbpd, NGL 156 kbbpd, bitumen 151 kbbpd.
2015 Natural gas available for sale: 4,060 Mcfpd.

Cell: G106

Comment: Rick Heede:
ConocoPhillips Form 10-K for 2016, page 159.
in 2016, Consolidated operations totaled crude oil 584 + NGL 137 + bitumen 35 Kbbpd = 756 Kbbpd. Equity affiliates produced 14 + 8 + 148 (bitumen) = 170 Kbbpd.

Cell: V106

Comment: Rick Heede:
ConocoPhillips 2015 Form 10-K, page 155, net production stats. In 2015, 3,422 Mcfpd consolidated operations, plus Equity Affiliates (Asia Pacific/Middle East) of 638 Mcfpd. Major operations in USA, Canada, Europe, Asia Pacific/Middle East.

Cell: D108

Comment: Rick Heede:
ConocoPhillips operates in Alaska (171 kbbpd), lower 48 (incl Eagle Ford): 300 kbbpd, Canada (38 kbbpd) plus 715 Mcf natgas plus 151 kbbpd of bitumen (Surmont, Foster Creek, Christina Lake);
RESULTS OF OPERATIONS (ConocoPhillips Form 10-K 2015, page 45):
Crude Oil: 605 kbbpd; NGL: 156 kbbpd; bitumen: 151 kbbpd, Natural gas: 4,060 Mcfpd.

Cell: D109

Comment: Rick Heede:
ConocoPhillips Form 10-K for 2016, Feb 17, page 159. See 2016 chart below for details.
Net production 2016: Crude oil: consolidated 584 kbbpd, equity affiliates 14 kbbpd, NGL 145 kbbpd, bitumen 183 kbp.
Natural gas available for sale, 2016: 3,857 Mcfpd.

Cell: V109

Comment: Rick Heede:
ConocoPhillips 2016 Form 10-K, page 159. Natgas production, Consolidated operations: 2,958 Mcfpd, plus equity affiliates 899 Mcfpd, total 3,857 Mcfpd.

Cell: D110

Comment: Rick Heede:
ConocoPhillips Form 10-K, Feb 2017: "Average net production" of crude oil (599 kbbpd), natural gas liquids (111 kbbpd), and bitumen (122 kbbpd), total 832 kbbpd = 304 Mb.
"We explore for, produce, transport and market crude oil, bitumen, natural gas, LNG and natural gas liquids on a worldwide basis. At December 31, 2017, our operations were producing in the United States, Norway, the United Kingdom, Canada, Australia, Timor-Leste, Indonesia, China, Malaysia, Qatar and Libya.
Total production, including Libya, of 1,377 MBOED decreased 12 percent in 2017 compared with 2016. The decrease in total average production primarily resulted from noncore asset dispositions, including our Canada and San Juan transactions in 2017 and the sale of our interest in the Block B production sharing contract (PSC) in Indonesia in 2016, and normal field decline."

Cell: V110

Comment: Rick Heede:
ConocoPhillips Form 10-K, Feb 2017: "Average net production" of natural gas, million cf/day. (Mcf/d)

Cell: D111

Comment: Rick Heede:
ConocoPhillips Annual Report and 10-K, page 46, Average net production of crude oil (653 kbpd), NGL (102 kbpd), and bitumen (66 kbpd).
Gas production in 2018: 2,774 million cfpd (Mcfpd).

Cell: V111
Comment: Rick Heede:
ConocoPhillips Annual Report and 10-K, page 46, Average net production of natural gas in 2018: 2,774 million cfpd (Mcfpd).