

Oil & NGL extraction data

Richard Heede
Climate Accountability Institute
File started: 11 January 2005
Last modified: May 2019

Copyright Climate Accountability Institute

BP, UK

www.bp.com London

Annual reports 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	Sum production
Thousand bbl /d	Thousand bbl /d	Thousand bbl /d	Thousand bbl /d	Million bbl /yr	Thousand bbl /d	Million bbl /yr	Million bbl /yr	Million bbl /yr	Million bbl /yr	Million bbl /yr	Million bbl /yr	Million bbl /yr
Anglo-Iranian 1950-1954, BP 1954-2010	Standard Oil (Ohio), Sohio (acq 1987)	Standard Oil (1949-2004), Dixie (1919-29)	Atlantic 1941-66, ARCO 1967-99 (50 percent)	Standard Oil (Midwest Oil (1920-1929))	Standard Oil (Pan American, 1925-1929)	Anglo-Iranian 1950-1954, BP 1954-2010	Standard Oil (Ohio), Sohio (acq 1987)	Standard Oil (Indiana) 1950-1954, Amoco 1998	Atlantic 1941-66, ARCO 1967-99 (50 percent)	Richfield Oil 1926-1966	Sinclair	Sum

1909
1910
1911
1912
1913
1914
1915
1916
1917
1918
1919
1920
1921
1922
1923
1924
1925
1926
1927
1928
1929
1930
1931
1932
1933
1934
1935
1936
1937
1938
1939
1940
1941
1942
1943
1944
1945
1946
1947
1948
1949
1950
1951
1952
1953
1954
1955
1956
1957
1958
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019

Company 1	Company 2	Company 3	Company 4	Company 5	Sum production	Company 1	Company 2	Company 3	Company 4	Company 5	Company 6	Sum production
Thousand bbl /d	Thousand bbl /d	Thousand bbl /d	Thousand bbl /d	Million bbl /yr	Thousand bbl /d	Million bbl /yr	Million bbl /yr	Million bbl /yr	Million bbl /yr	Million bbl /yr	Million bbl /yr	Million bbl /yr
Anglo-Iranian 1950-1954, BP 1954-2010	Standard Oil (Ohio), Sohio (acq 1987)	Standard Oil (1949-2004), Dixie (1919-29)	Atlantic 1941-66, ARCO 1967-99 (50 percent)	Standard Oil (Midwest Oil (1920-1929))	Standard Oil (Pan American, 1925-1929)	Anglo-Iranian 1950-1954, BP 1954-2010	Standard Oil (Ohio), Sohio (acq 1987)	Standard Oil (Indiana) 1950-1954, Amoco 1998	Atlantic 1941-66, ARCO 1967-99 (50 percent)	Richfield Oil 1926-1966	Sinclair	Sum
1909												
1910												
1911												
1912												
1913												
1914												
1915												
1916												
1917												
1918												
1919												
1920												
1921												
1922												
1923												
1924												
1925												
1926												
1927												
1928												
1929												
1930												
1931												
1932												
1933												
1934												
1935												
1936												
1937												
1938												
1939												
1940												
1941												
1942												
1943												
1944												
1945												
1946												
1947												
1948												
1949												
1950												
1951												
1952												
1953												
1954												
1955												
1956												
1957												
1958												
1959												
1960												
1961												
1962												
1963												
1964												
1965												
1966												
1967												
1968												
1969												
1970												
1971												
1972												
1973												
1974												
1975												
1976												
1977												
1978												
1979												
1980												
1981												
1982												
1983												
1984												
1985												
1986												
1987												
1988												
1989												
1990												
1991												
1992												
1993												
1994												
1995												
1996												
1997												
1998												
1999												
2000												
2001												
2002												
2003												
2004												
2005												
2006												
2007												
2008												
2009												
2010												
2011												
2012												
2013												
2014												
2015												
2016												
2017												
2018												
2019												
Total												

Natural gas extraction data

Richard Heede
 Climate Accountability Institute
 File started: 11 January 2005
 Last modified: May 2019

Copyright Climate Accountability Institute

BP, UK

Annual reports yellow column indicates original reported units Investor-owned

Year	Natural Gas												
	Company 1	Company 2	Company 3	Company 4	Company 5	Sum production	Company 1	Company 2	Company 3	Company 4	Company 5	Company 6	Sum production
	Million cf/d	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
	Anglo-Iranian 1950-1954, BP 1954-2010	Standard Oil (Ohio), Sohio (acq 1987)	Standard Oil (Indiana), Amoco 1998	Atlantic 1941-66, ARCO 1967-99 (50 percent)	Richfield Oil 1950-1966	Sum 1920-2010	Anglo-Iranian 1950-1954, BP 1954-2004	Standard Oil (Ohio), Sohio (acq 1987)	Standard Oil (Indiana), Amoco 1998	Atlantic 1941-66, ARCO 1967-99 (50 percent)	Richfield Oil 1950-1966	Sinclair	Sum
1909													
1910													
1911													
1912													
1913													
1914													
1915													
1916													
1917													
1918													
1919													
1920													
1921													
1922													
1923													
1924													
1925													
1926													
1927													
1928													
1929													
1930													
1931													
1932													
1933													
1934													
1935													
1936													
1937													
1938													
1939													
1940													
1941													
1942													
1943													
1944													
1945													
1946													
1947													
1948													
1949													
1950													
1951													
1952													
1953													
1954													
1955													
1956													
1957													
1958													
1959													
1960													
1961													
1962													
1963													
1964													
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008													
2009													
2010													
2011													
2012													
2013													
2014													
2015													
2016													
2017													
2018													
2019													
Total	na	3,037	na	na	na	na	53,881	1,109	48,245	9,824	55	1,340	128,234

- 1909
- 1910
- 1911
- 1912
- 1913
- 1914
- 1915
- 1916
- 1917
- 1918
- 1919
- 1920
- 1921
- 1922
- 1923
- 1924
- 1925
- 1926
- 1927
- 1928
- 1929
- 1930
- 1931
- 1932
- 1933
- 1934
- 1935
- 1936
- 1937
- 1938
- 1939
- 1940
- 1941
- 1942
- 1943
- 1944
- 1945
- 1946
- 1947
- 1948
- 1949
- 1950
- 1951
- 1952
- 1953
- 1954
- 1955
- 1956
- 1957
- 1958
- 1959
- 1960
- 1961
- 1962
- 1963
- 1964
- 1965
- 1966
- 1967
- 1968
- 1969
- 1970
- 1971
- 1972
- 1973
- 1974
- 1975
- 1976
- 1977
- 1978
- 1979
- 1980
- 1981
- 1982
- 1983
- 1984
- 1985
- 1986
- 1987
- 1988
- 1989
- 1990
- 1991
- 1992
- 1993
- 1994
- 1995
- 1996
- 1997
- 1998
- 1999
- 2000
- 2001
- 2002
- 2003
- 2004
- 2005
- 2006
- 2007
- 2008
- 2009
- 2010
- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
- 2017
- 2018
- 2019

BP in action
 Highlights of some of our activities in 2018.

- Completed significant expansion of our liquid utility, Wytch Farm, UK.
- Acquired 70% ownership of the world's largest electric vehicle charging network, Shell Recharge.
- Purchased a 16.5% interest in the UK's first hydrogen production plant, H2V, in Dorset.
- Completed a double-line expansion of the TransCanada and Enbridge pipelines, increasing capacity to 1.2 million barrels per day.
- Opened more than 200 new BP service stations in Germany.
- Invested in PowerShare - a Chinese company that converted BP's waste gas into power.
- Invested in the first ever offshore wind farm in the North Sea, Humbly Grove, UK.
- Acquired 50% of the world's largest oilfield, the Ghazal field in Sudan.
- Acquired 50% of the world's largest oilfield, the Ghazal field in Sudan.
- Acquired 50% of the world's largest oilfield, the Ghazal field in Sudan.

Year	Amoco	BP
	Bcf/yr	Bcf/yr
1950	15	18
1951	18	20
1952	20	20
1953	23	23
1954	24	26
1955	26	29
1956	28	33
1957	33	37
1958	35	42
1959	42	48
1960	48	54
1961	54	61
1962	61	69
1963	69	78
1964	78	89
1965	89	100
1966	100	137
1967	137	163
1968	163	193
1969	193	244
1970	244	266
1971	266	283
1972	283	335
1973	335	361
1974	361	397
1975	397	421
1976	421	474
1977	474	492
1978	492	551
1979	551	576
1980	576	93
1981	93	96
1982	96	104
1983	104	134.7
1984	134.7	134.5
1985	134.5	145.3
1986	145.3	1538
1987	1538	1751
1988	1751	1854
1989	1854	1916
1990	1916	2,006
1991	2,006	1,974
1992	1,974	1,806
1993	1,806	1,668
1994	1,668	1,661
1995	1,661	1,639
1996	1,639	1,636
1997	1,636	1,482
1998	1,482	1,492
1999	1,492	1,405
2000	1,405	1,468
2001	1,468	1,518
2002	1,518	1,473
2003	1,473	1,530
2004	1,530	1,668
2005	1,668	2,026
2006	2,026	2,138
2007	2,138	2,113
2008	2,113	2,125
2009	2,125	2,234
2010	2,2	

	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY		
1	Coal extraction data																		
2	Richard Heede <i>Climate Mitigation Services</i> File started: 11 January 2005 Last modified: May 2018																		
3	BP, UK																		
4	Coal																		
5	Year	Company 1						Company 2						Sum production					
6		Million tons/yr		Million tons/yr		Million tons/yr		Million tonnes/yr		Million tonnes/yr		Million tonnes/yr		Million tonnes/yr		Sum			
7		Atlantic 1950-66, ARCO 1967-1999		Sohio		Sum		BP Coal 7-1990						Sum					
8	1909	Subsidiaries and equity-accounted entities volumes in mmbce*																	
9	1910	Proved undeveloped reserves at 1 January 2018 8,060																	
10	1911	Revisions of previous estimates 20																	
11	1912	Improved recovery 311																	
12	1913	Discoveries and extensions 646																	
13	1914	Purchases 1,174																	
14	1915	Sales (12)																	
15	1916	Total in year proved undeveloped reserves changes 2,139																	
16	1917	Proved developed reserves reclassified as undeveloped 15																	
17	1918	Progressed to proved developed reserves by development activities (e.g. drilling/completion) (1,306)																	
18	1919	Proved undeveloped reserves at 31 December 2018 8,908																	
19	1920																		
20	1921	Subsidiaries only volumes in mmbce*																	
21	1922	Proved undeveloped reserves at 1 January 2018 4,052																	
22	1923	Revisions of previous estimates (272)																	
23	1924	Improved recovery 297																	
24	1925	Discoveries and extensions 169																	
25	1926	Purchases 945																	
26	1927	Sales (12)																	
27	1928	Total in year proved undeveloped reserves changes 1,128																	
28	1929	Proved developed reserves reclassified as undeveloped 12																	
29	1930	Progressed to proved developed reserves by development activities (e.g. drilling/completion) (745)																	
30	1931	Proved undeveloped reserves at 31 December 2018 4,447																	
31	1932																		
32	1933	* Because of rounding, some totals may not agree exactly with the sum of their component parts.																	
33	1934	BP plc (2019) Annual Report and 20-F for 2018, Page 285.																	
34	1935																		
35	1936																		
36	1937																		
37	1938																		
38	1939																		
39	1940																		
40	1941																		
41	1942																		
42	1943																		
43	1944																		
44	1945																		
45	1946																		
46	1947																		
47	1948																		
48	1949																		
49	1950																		
50	1951																		
51	1952																		
52	1953																		
53	1954																		
54	1955																		
55	1956																		
56	1957																		
57	1958																		
58	1959																		
59	1960																		
60	1961																		
61	1962																		
62	1963																		
63	1964																		
64	1965																		
65	1966																		
66	1967																		
67	1968																		
68	1969																		
69	1970																		
70	1971																		
71	1972																		
72	1973																		
73	1974																		
74	1975																		
75	1976																		
76	1977																		
77	1978																		
78	1979																		
79	1980																		
80	1981																		
81	1982																		
82	1983																		
83	1984																		
84	1985																		
85	1986																		
86	1987																		
87	1988																		
88	1989																		
89	1990																		
90	1991																		
91	1992																		
92	1993																		
93	1994																		
94	1995																		
95	1996																		
96	1997																		
97	1998																		
98	1999																		
99	2000																		
100	2001																		
101	2002																		
102	2003																		
103	2004																		
104	2005																		
105	2006																		
106	2007																		
107	2008																		
108	2009																		
109	2010																		
110	2011																		
111	2012																		
112	2013																		
113	2014																		
114	2015																		
115	2016																		
116	2017																		
117	2018																		
118	2019																		
119	2020																		
120	2021																		
121	2022																		
122	2023																		
123	2024																		
124	2025																		
125	2026																		
126	2027																		
127	Total	595	171	171	276	431													

Richard Heede
Climate Mitigation Services
File started: 11 January 2005
Last modified: May 2018

BP, UK

Year	Company 1	Company 2	Sum production	Company 1	Company 2	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	Sohio	Sum	BP Coal 7-1990		Sum

Year	Subsidiaries and equity-accounted entities	volumes in mmbce*
1910	Proved undeveloped reserves at 1 January 2018	8,060
1911	Revisions of previous estimates	20
1912	Improved recovery	311
1913	Discoveries and extensions	646
1914	Purchases	1,174
1915	Sales	(12)
1916	Total in year proved undeveloped reserves changes	2,139
1917	Proved developed reserves reclassified as undeveloped	15
1918	Progressed to proved developed reserves by development activities (e.g. drilling/completion)	(1,306)
1919	Proved undeveloped reserves at 31 December 2018	8,908

Year	Subsidiaries only	volumes in mmbce*
1928	Proved undeveloped reserves at 1 January 2018	4,052
1929	Revisions of previous estimates	(272)
1930	Improved recovery	297
1931	Discoveries and extensions	169
1932	Purchases	945
1933	Sales	(12)
1934	Total in year proved undeveloped reserves changes	1,128
1935	Proved developed reserves reclassified as undeveloped	12
1936	Progressed to proved developed reserves by development activities (e.g. drilling/completion)	(745)
1937	Proved undeveloped reserves at 31 December 2018	4,447

* Because of rounding, some totals may not agree exactly with the sum of their component parts.

BP plc (2019) Annual Report and 20-F for 2018, Page 285.

Year	Sohio not included in total: get mines data and to whom sold and when	Sohio coal	get BP coal stats
1960		4.2	4
1961		3.8	4
1962		4.1	4
1963		4.6	5
1964		5.1	5
1965		6.3	6
1966		9.9	10
1967		10.3	10
1968		9.9	10
1969		12.0	12
1970		11.7	12
1971		10.5	10
1972		11.2	11
1973		11.5	11
1974		9.5	9
1975		9.2	9
1976		9.7	10
1977		9.7	10
1978		7.8	8
1979		10.0	10
1980		11.1	11.8
1981		15.8	20.8
1982		19.2	20.8
1983		19.8	21.3
1984		26.3	20.7
1985		29.8	26.8
1986		27.2	26.5
1987		26.1	27.8
1988		32.4	27.4
1989		39.4	26.2
1990		38.3	26.0
1991		41.6	26.0
1992		39.8	
1993		47.7	
1994		38.4	
1995		45.7	
1996		51.0	
1997		46.4	
1998			
1999			
2000			
2001			
2002			
2003			
2004			
2005			
2006			
2007			
2008			
2009			
2010			
2011			
2012			
2013			
2014			
2015			
2016			
2017			
2018			
2019			
2020			
2021			
2022			
2023			
2024			
2025			
2026			
2027			
2028			
2029			
2030			
2031			
2032			
2033			
2034			
2035			
2036			
2037			
2038			
2039			
2040			
2041			
2042			
2043			
2044			
2045			
2046			
2047			
2048			
2049			
2050			
2051			
2052			
2053			
2054			
2055			
2056			
2057			
2058			
2059			
2060			
2061			
2062			
2063			
2064			
2065			
2066			
2067			
2068			
2069			
2070			
2071			
2072			
2073			
2074			
2075			
2076			
2077			
2078			
2079			
2080			
2081			
2082			
2083			
2084			
2085			
2086			
2087			
2088			
2089			
2090			
2091			
2092			
2093			
2094			
2095			
2096			
2097			
2098			
2099			
2100			
2101			
2102			
2103			
2104			
2105			
2106			
2107			
2108			
2109			
2110			
2111			
2112			
2113			
2114			
2115			
2116			
2117			
2118			
2119			
2120			
2121			
2122			
2123			
2124			
2125			
2126			
2127			

Greenhouse gas emissions

	2014	2015	2016	2017	2018
Operational control¹					
Direct greenhouse gas (GHG) (Mte CO ₂ equivalent (CO ₂ e))	54.1	51.2	51.4	50.5	48.8
Direct carbon dioxide (CO ₂) (million tonnes (Mte))	51.6	48.5	48.4	47.8	46.4
Direct methane (Mte)	0.12	0.11	0.12	0.11	0.09
Methane intensity ² (%)	—	—	0.2	0.2	0.2
Sustainable GHG emissions reductions ³ (Mte CO ₂ e)	0.1	0.2	0.7	0.5	1.3
Indirect emissions (MteCO ₂ e)	7.5	7.0	6.2	6.1	5.4
Flaring ⁴ (tspst/ann) (thousand tonnes of hydrocarbon)	2,188	1,863	1,896	1,987	1,634
Equity⁵					
Direct greenhouse gas (GHG) (Mte CO ₂ equivalent (CO ₂ e))	48.7	49.0	50.1	49.4	46.5
Direct carbon dioxide (CO ₂) (million tonnes (Mte))	45.5				

Cell: F8**Comment:** Rick Heede:

History, 1909 to 1979 (wikipedia: en.wikipedia.org/wiki/BP)

In May 1901, William Knox D'Arcy was granted a concession by the Shah of Iran to search for oil, which he discovered in May 1908. This was the first commercially significant find in the Middle East. On 14 April 1909, the Anglo-Persian Oil Company (APOC) was incorporated as a subsidiary of Burmah Oil Company to exploit this. In 1923, it employed future Prime Minister, Winston Churchill as a paid consultant, to lobby the British government to allow Burmah to have exclusive rights to Persian oil resources, which were successfully granted. In 1935, it became the Anglo-Iranian Oil Company (AIOC).

Following World War II, AIOC and the Iranian government initially resisted nationalist pressure to revise AIOC's concession terms still further in Iran's favour. But in March 1951, the pro-western Prime Minister Ali Razmara was assassinated.[19] The Majlis of Iran (parliament) elected a nationalist, Mohammed Mossadeq, as prime minister. In April, the Majlis nationalised the oil industry by unanimous vote. The National Iranian Oil Company was formed as a result, displacing the AIOC. The AIOC withdrew its management from Iran, and organised an effective boycott of Iranian oil. The British government – which owned the AIOC – contested the nationalisation at the International Court of Justice at The Hague, but its complaint was dismissed.

By spring of 1953, incoming US President Dwight D. Eisenhower authorised the Central Intelligence Agency (CIA) to organise a coup against the Mossadeq government with support from the British government. On 19 August 1953, Mossadeq was forced from office by the CIA conspiracy, involving the Shah and the Iranian military, and known by its codename, Operation Ajax.

Mossadeq was replaced by pro-Western general Fazlollah Zahedi and the Shah, who returned to Iran after having left the country briefly to await the outcome of the coup. The Shah abolished the democratic Constitution and assumed autocratic powers.

After the coup, Mossadeq's National Iranian Oil Company became an international consortium, and AIOC resumed operations in Iran as a member of it. The consortium agreed to share profits on a 50–50 basis with Iran, "but not to open its books to Iranian auditors or to allow Iranians onto its board of directors." AIOC, as a part of the Anglo-American coup d'état deal, was not allowed to monopolise Iranian oil as before. It was limited to a 40% share in a new international consortium. For the rest, 40% went to the five major American companies and 20% went to Royal Dutch Shell and Compagnie Française des Pétroles, now Total S.A.."

The AIOC became the British Petroleum Company in 1954. In 1959, the company expanded beyond the Middle East to Alaska and in 1965 it was the first company to strike oil in the North Sea. In 1978 the company acquired a controlling interest in Standard Oil of Ohio or Sohio, a breakoff of the former Standard Oil that had been broken up after anti-trust litigation.[29] In 1967 the giant oil tanker, the Torrey Canyon, foundered off the English coast, even though the ship was flying the well known flag of convenience, that of Liberia. The ship was in fact operated on behalf of BP. The Prime Minister of that time, 1967, had the ship bombed by RAF jet bombers, in an effort to break the ship up and sink it (see Torrey Canyon oil spill). This was unsuccessful, and the method has not been repeated. BP continued to operate in Iran until the Islamic Revolution in 1979. The new regime of Ayatollah Khomeini confiscated all of the company's assets in Iran without compensation, bringing to an end its 70-year presence in Iran.

Cell: P10**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 net production (after royalty production is deducted).

We rely on company annual reports, Form 10-K, or other company data where available. In some cases -- particularly for state-owned oil and gas companies -- we use production data from the Oil & Gas Journal in its OJ150 and OJ100.

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

Cell: AG10**Comment:** Rick Heede:

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

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

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

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

Coal production by coal mining companies and state-owned enterprises, including subsidiaries of oil and gas companies. The coal rank (which reflects the heating value and carbon content per tonne) of produced coals is noted where reported by each entity. See the coal entity workbooks or summary worksheets for details.

Cell: M13**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: AD13**Comment:** Rick Heede:

BP and ConocoPhillips are each allocated 50 percent of ARCO's natural gas production from 1967-1999.

ARCO 1998: 768 billion cf.

ARCO 1999 gas production (OGJ 2000): 868 billion cf.

Cell: J19**Comment:** Rick Heede:

Anglo-Persian Oil Company, Limited

Notes from Peter Roderick 6Nov06, from:

The 5th Ordinary GM, 30 Nov 1914, re yr ended 31 March 1914 Speech of Chairman, Mr Charles Greenway.

"As to the position of the Fields, I am pleased to say that this continues as satisfactory as ever. Practically the whole of the oil delivered to us by our producing Companies during the past twelve months has been obtained from two only of their wells.... Well No.F.... still continues to give a production of 7,500 barrels daily - equivalent to about 450,000 tons per annum..."

Note by CMS: this is a curious quantification inasmuch as the 7,500 bbl per day equal annual production of 2.738 million bbl, which, if metric tonnes, = 373,465 tonnes, if short tons then 411,671 tons. In other words, the bbl to ton conversion used by Mr. Greenway is a ton 1.205 times metric tonne. Perhaps the Anglo-Persian accounting department used Imperial gallons (1 imp gal = 1.20095 US gallons), which is non-standard (the barrel equals 42 US gallons and is a measure originating in the oilfields of Pennsylvania).

"With regard to the present refinery..... You will remember that last year the figures given showed a gradual increase in throughput from a monthly average of 1,344,000 gallons for the quarter which ended in December, 1912, to 2,890,000 gallons for the quarter which ended in September 1913. To show the progress since that date I mention that the throughput -

For the 3 months ended December last averaged 3,200,000 gallons monthly.

For March: 4,169,000 gallons monthly

For June: 4,911,000 gallons monthly

For September: 7,287,000 gallons monthly

Whilst for the month of October it was 7,410,000 gallons."

CMS uses the field production data above, which references production of 7,500 bbl per day in one of two producing fields. Since a total is not given, CMS assumes total average production of 12,000 bbl per day, or 4.38 million bbl in 1913. CMS interpolates between 1913 and 1918. CMS disregards the refinery throughput data since it does not reference whether Anglo-Persian's own production is being refined.

Cell: D22**Comment:** Rick Heede:

CMS assumes that reported crude oil production is given in long (Imperial) tons; 1 metric tonne = 1.016047 imp tons.

Cell: H23**Comment:** Rick Heede:

Standard Oil of Indiana started acquiring stock in Midwest Refining Company in 1920. Midwest owned production wells, refineries, and pipelines in Wyoming ; Standard also owned a cracking plant at Casper.

Cell: I23**Comment:** Rick Heede:

Standard acquired a 27.3 percent interest in Pan American Petroleum & Transport Company in 1925 (150,000 of 550,000 shares). Pan American had very productive wells in Mexico's Golden Lane, in Venezuela, and a five percent share in Iraq Petroleum Company, plus a shipping fleet, pipelines, refineries, etc. It was a perfect match for Standard's strong marketing network acquired for \$3 million direct (plus \$1.5 million owned by its directors).

Cell: L23**Comment:** Rick Heede:

Standard Oil (Indiana) was established out of the Standard Oil Company by the Supreme Court's 1911 dissolution order. While Standard Oil (Indiana) was one of the largest oil products refiners and retailers in the country, the company did not have oil production properties until after World War One, when rising gasoline demand squeezed oil supplies and Standard found it difficult to secure supply contracts. Standard first acquired Dixie Oil Company in 1919, and Midwest in 1920, and by 1929 the company reported oil production of ~62 million bbl.

Data for Standard Oil (Indiana) for 1929-1951 from Giddens, Paul (1955) Standard Oil Company (Indiana): Oil Pioneer of the Middle West, pp. 562, 610, 655. Crude production data for 1929-1937 is estimated from a bar graph (Giddens, p. 562); subsequent data is from Standard's annual reports.

Natural gas data only for 1947-1951.

Oil data 1945-1951 include NGLs.

Note: Standard Oil (Indiana) annual report for 1951, with data for 1949-1951, show slightly lower crude plus NGL net production data (and much higher gross production data). Consequently, we use published Standard Oil data for 1949 and thereafter, and Giddens data for 1929 through 1948.

Cell: D24**Comment:** Rick Heede:

Annual reports of Anglo Persian, courtesy of Peter Roderick at Guildhall Library in London (historical collections).

Cell: J24**Comment:** Rick Heede:

Anglo Persian's production in 1918 through 1924 is from annual reports (Guildford Library in London, courtesy of Peter Roderick). Also annual report 1930-1949, with interpolation for missing data years 1925-1929, inclusive.

CMS converts long tons to million bbl per year (1 tonne = 1.016047 long tons, 1 tonne = 7.3 barrels.

Cell: F25**Comment:** Rick Heede:

Standard acquired Dixie Oil Company in 1919. Standard's chairman Robert W. Stewart led an effort during tightening oil supplies after World War One to acquire crude oil supplies. Dixie was the first acquisition, and was producing ~500 bbl per day, chiefly in Louisiana, but production rose to 0.2344 million bbl in 1920 and to 0.3887 million bbl per yr in 1922. Giddens, 1955, p. 218.

Cell: L25**Comment:** Rick Heede:

Standard Oil Company (Indiana) was not a crude producer until the acquisition of Dixie Oil in 1919, followed by equity interest in Midwest and Pan American. Oil production for 1918-1928 is taken from Giddens and calculated in columns F, H, and I.

Cell: H26**Comment:** Rick Heede:

Standard acquired a minority interest in Midwest in 1920, when Midwest controlled 65 percent of Wyoming oil production, which totaled 16.83 million bbl in 1920 (=16.831*0.65*0.38). By 1923, Standard had increased its equity interest to 99.5 percent (=26.715*0.65*0.995).

By 1922, Wyoming produced 26.7 million bbl, stated as a 38 percent increase over 1921. does not account for increased production by Midwest. Giddens, p. 220 and 221.

Cell: N28**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: D30**Comment:** Rick Heede:

Anglo-Persian, 1924: Speech of Sir Charles Greenway, Bart., Chairman of the Anglo-Persian Oil Company, to the 15th Ordinary General Meeting of the company on 25th November 1924 at Wichester House, Old Broad Street, London. Greenway projects 1924/1925 production "should be between 4.25 and 4.5 million tons." CMS thus uses the average (4.375 Mt). CMS interpolates from 1925-1929.

Cell: N32

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 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: I33

Comment: Rick Heede:

Standard acquired 290,000 shares from two other minority shareholders in Pan American (Blair & Company and Sherar Corporation), clearing the way "for Standard to secure complete control of Pan American Petroleum & Transport." Giddens, 1955, p. 247.
While CMS does not have complete information on Standard's ownership share (lacking information on total shares issued), but assuming the original issuance of 550,000 shares, Standard now has (150,000 + 290,000)/550,000 = 80.72 percent equity interest. CMS also assumes the same production level by Pan American -- 150,000 bbl per day -- 1927 and 1928 as in 1925, which is most likely a conservatism.

Cell: F34

Comment: Rick Heede:

Standard Oil transferred its Kansas oil producing properties to Dixie in 1926. "By 1928 it had more than 105,000 acres of promising oil lands in Louisiana and Texas and in the Mid-Continent field, which produced 10,167 bbl per day." Giddens, p. 219. Since Giddens does not specify production of all of Dixie's oil properties, CMS assumes that Dixie's total production is twice that of its Mid-Continent field.

Cell: L35

Comment: Rick Heede:

Standard Oil (Indiana) "net crude production of Standard and subsidiaries 1929-1944" in Giddens (1955) Standard Oil Company (Indiana): Oil Pioneer of the Middle West, p. 562. (CMS uses 1929-1937, thereafter annual reports.)

Cell: N35

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: D36

Comment: Rick Heede:

Oil production for 1930-1950 from Bamberg (1994) History of BP 1928-1954, pp. 69, 242, 352. Original data in million tons (presumably long tons; 1 metric tonne = 1.016047). Conversion at 7.33 bbl per tonne (tons*7.33*1.016047).
In the 1930 Anglo-Persian report mentions that the "net production of oil from Masjid-i-Suleiman was approximately 5.5 million tons -- the rate of production differing little from that of the preceding year." CMS has no data on Anglo-Persian's production of crude oil from its other fields, eg., in Indonesia or elsewhere in Persia or Mesopotamia, hence we have no basis for increasing Bamberg's estimate.

Cell: N36

Comment: Rick Heede:

In lieu of having Richfield oil production data for 1930-1937 (lacking copies of annual reports for those years, we apply sequential interpolation using the known Standard Oil (Indiana) production decline 1930-1937 as follows: 1930: =N27/(L27/L28), 1931: =N28/(L28/L29), etc.
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: E37

Comment: Rick Heede:

This needs to be ascertained. CMS has not verified the use of metric or english units in commerce of the day. Even though the metric system was recognized in the British Empire in 1873, the general use thereof did not take hold until the 1950s (and 1970s in Australia and New Zealand). Britain established the Imperial system in 1845.
Anglo-Persian does not specify the units it employs to convey quantities, and its 1914 GM notes puts forth that "7,500 bbl per day = ~450,000 tons per annum." This means a ton 1.2 as heavy as a metric tonne, which is a definition unknown to us. See Column J, 1914, cell note at J21 for discussion.

Cell: AC38

Comment: Rick Heede:

Amoco natural gas production is estimated for 1932-1946 on the basis of average growth of 11.71 percent per annum from 1947-1956 and applied to 1932-1946.

Cell: L44

Comment: Rick Heede:

Standard Oil Company (Indiana) Annual Report 1938, p.17, shows net crude oil production for 1938 only. The company reports operating 73 gas wells but does not report gas production; (4,091 oil wells).

Cell: M44

Comment: Rick Heede:

CMS allocates 50 percent of Atlantic 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: N44

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: K45

Comment: Rick Heede:

Standard Oil Company (Ohio) Annual Report 1948, pp. 14-15, shows "net production - crude oil and other liquid hydrocarbons" for 1939 through 1948. This operating summary does not report production (or sales) of natural gas, nor of gas wells owned.

Cell: L45

Comment: Rick Heede:

Standard Oil Company (Indiana) Annual Report 1938, p.14, reports net crude oil production. A bar chart shows "crude oil production" (as well as runs to stills and sales); CMS concludes that the Giddens data appears to be in close agreement with this crudely sketched chart and we use the Giddens data for crude oil production from 1929 through 1937.

Cell: F46

Comment: Rick Heede:

Standard Oil Company (Indiana) Annual Report 1940, reports net crude oil production.

Cell: L46

Comment: Rick Heede:

Standard Oil Company (Indiana) Annual Report 1940, reports net crude oil production.

Cell: G47

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. Typically, net production is in the range of 0.7 to 0.9 of gross production, for Atlantic in 1950 it is apparently 0.365.

Cell: L47

Comment: Rick Heede:

Standard Oil Company (Indiana) Annual Report 1941, reports net crude oil production. Does not report NGL, or natural gas production.

Cell: L48

Comment: Rick Heede:

Standard Oil Company (Indiana) Annual Report 1943, reports net and gross crude oil production. While the company owns 6,114 oil wells and 190 gas wells, no gas production is reported. The company does report purchases of crude oil of 110.2 million bbl in 1943, and gross oil production of 58.56 million bbl (net is thus 0.870 of gross in 1943).

Cell: N48

Comment: Rick Heede:

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

Cell: N49

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: L50

Comment: Rick Heede:

Standard Oil Company (Indiana) Annual Report 1945, reports net (64.69 million bbl) and gross (74.01 million bbl) crude oil production. While the company owns 6,813 oil wells and 236 gas wells, no gas production is reported. The company does report purchases of crude oil of 130 million bbl in 1945; net is oil production is 0.874 of gross in 1945). Standard also reports "natural gasoline produced" of 0.70 million bbl in 1945, which CMS adds to reported crude oil production.

- Cell:** O50
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:** N51
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:** L52
Comment: Rick Heede:
 Standard Oil Company (Indiana) Annual Report 1947, reports net (71.81 million bbl) and gross (83.73 million bbl) and "operated" (92.39 million bbl) crude oil production. While the company owns 7,772 oil wells and 579 gas wells, no gas production is reported. The company does not report purchases of crude oil for 1947 but does report refinery runs of 135 million bbl for the year; net is oil production is 0.858 of gross in 1947). Standard also reports "natural gasoline produced" of 0.93 million bbl in 1947, which CMS adds to reported crude oil production.
- Cell:** N52
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:** O52
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:** N53
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:** W53
Comment: Rick Heede:
 Giddens (1955), p. 655. Gas data for 1945-51 only (in thousand cubic feet per day). Note: we use Standard Oil (Indiana) Annual reports for 1949 fwd; Giddens data is 400 k cf / day for 1949, 550 in 1950, and 700 in 1951, i.e., both higher and lower than SO actual data.
- Cell:** L54
Comment: Rick Heede:
 Production data from Giddens, to which CMS adds 1 million bbl of natural gasoline production (estimated).
- Cell:** F55
Comment: Rick Heede:
 Standard Oil Company (Indiana) Annual Report 1953, Five-Year Operating Summary; data in net production of crude oil and natural gas liquids, kbbl / day.
- Cell:** W55
Comment: Rick Heede:
 Standard Oil Company (Indiana) Annual Report 1953, Five-Year Operating Summary; data in net production of natural gas, thousand cf / day converted to million cf / d.
- Cell:** D56
Comment: Rick Heede:
 Bamberg (2000) British Petroleum and Global Oil 1950-1975, Fig. 1.1 shows BP's sources of crude oil production 1950-1954 in kbbl/d (850, 670, 520, 660, 740 kbbl/d, respectively).
- Cell:** E56
Comment: Rick Heede:
 Standard Oil Company (Ohio) Annual Report 1959, pp. 22-23, shows "net production - crude oil and other liquid hydrocarbons, barrels per day" for 1950 through 1959. This operating summary does not report production (or sales) of natural gas, nor of gas wells owned; a few (four to eight) gas wells are reported drilled each year, however.
- Cell:** J56
Comment: Rick Heede:
 Data for 1950, 1955, 1960, 1965, and 1970 inferred from a chart comparing crude oil production 1950-1970 (five-year "datums"). Bamberg (2000) British Petroleum and Global Oil 1950-1975, Fig. 9.1 (p. 221) shows BP's sources of crude oil production 1950-1954 in kbbl/d.
- Cell:** G57
Comment: Rick Heede:
 Atlantic (1953) Annual Report for 1952. Data for "crude oil production, bbl/d".
- Cell:** F59
Comment: Rick Heede:
 Standard Oil Company (Indiana) Annual Report 1962, Ten-Year Operating Summary; data in net production of crude oil and natural gas liquids, kbbl / day.
 Note: 1961 net = 0.695 of gross, which translates to a yearly total of and 185.1 million bbl gross and 128.6 million bbl net. The disposition of this 56.5 million bbl difference is not known, but is presumably royalty production and some company use.
- Cell:** G59
Comment: Rick Heede:
 Atlantic (1955) Annual Report for 1954. Data for "crude oil production, bbl/d".
- Cell:** W59
Comment: Rick Heede:
 Standard Oil Company (Indiana) Annual Report 1962, Ten-Year Operating Summary; data in net production of natural gas, thousand cf / day. Gross gas production is not given in any AnnRpt reviewed; the company markets more gas than it produces (esp after 1950).
- Cell:** Y60
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:** AE60
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:** AF60
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:** G61
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:** N61
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:** D62
Comment: Rick Heede:
 Crude oil production for 1956 and 1957 from BP Ltd (1960) Annual Report and Accounts for 1959. Converted from long tons to million bbl/yr in column J.
- Cell:** J62
Comment: Rick Heede:
 Converted from BP data in long tons: long tons x 7.3 bbl per metric tonne x 2240 lbs per long ton / 2204.6 lbs per metric tonne.
- Cell:** AF62
Comment: Rick Heede:
 For natural gas production data sources, see Sinclair oil column.
- Cell:** G63
Comment: Rick Heede:
 Atlantic (1959) Annual Report for 1958. Data for "crude oil production, bbl/ per day, net."
- Cell:** AD63
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:** D64
Comment: Rick Heede:
 Crude oil production for 1958-1965 from BP (1969) Annual Report, p. 32 bar graph by year (estimated). Accuracy +/- 2 percent.

Cell: J64

Comment: Rick Heede:
SALES of crude oil and products 1958, 1960, 1962, 1964, 1966, and 1968 in Bamberg (2000), p. 396. Entered provisionally (in italics) until we get production data.

Cell: X64

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 CononocPhillips in the annual total column (Bcf/yr), in this case column AA.

Cell: G65

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: E66

Comment: Rick Heede:
Standard Oil Company (Ohio) Annual Report 1969, pp. 30-31, shows "net production - crude oil and condensate, barrels per day" for 1960 through 1969. Natural gas production is also (finally) reported.

Cell: V66

Comment: Rick Heede:
Standard Oil Company (Ohio) Annual Report 1969, pp. 30-31, shows "net production of natural gas" is also (finally) reported (not reported in in 1959 reports or earlier, even though gas well completions were reported).

Cell: X66

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: D67

Comment: Rick Heede:
Bamberg (2000) British Petroleum and Global Oil 1950-1975, Fig. 6.1 shows comparative 1961 production by seven sisters by region: SONJ (2.7 million bbl/d), Shell (2.1 Mbb/d), BP (1.6 Mbb/d), Gulf (1.6 Mbb/d), Texaco (1.5 Mbb/d), Socal (1.1 Mbb/d), and Socony-Mobil (0.85 Mbb/d), BP = 584 million bbl for the year.
Note: we use the BP data series from its Annual Report for 1968, which, for 1958-1968 p. 32, shows BP crude oil production in million bbl/yr. The original data is in chart form, however, and are thus estimates within +/- 2 percent. Data presumably excludes NGL (if any).

Cell: G67

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

Cell: F68

Comment: Rick Heede:
Standard Oil Company (Indiana) Annual Report 1971, Ten-Year Operating Summary; data in net production of crude oil and natural gas liquids, kbbl / day.

Cell: G68

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 (presumably revised to show all subsidiaries and acquisitions):

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: N68

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: W68

Comment: Rick Heede:
Standard Oil Company (Indiana) Annual Report 1971, Ten-Year Operating Summary; data in net production of natural gas. Gas sold is roughly equal to gas produced for this period.

Cell: X68

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
	1963:	623.8 million cf / day
	1964:	642.7 million cf / day
	1965:	716.5 million cf / day.

Cell: X70

Comment: Rick Heede:
"Natural gas sales, North America." Atlantic Annual report for 1964.

Cell: X71

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: D72

Comment: Rick Heede:
Oil production 1966-1976 from BP (1977) Annual Report.

Cell: G73

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

Cell: X73

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

Cell: G75

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: E76

Comment: Rick Heede:
Standard Oil Company (Ohio) Annual Report 1979, Operating Statistics, shows "net production - crude oil and natural gas liquids, barrels per day" for 1970 through 1979. The large production jump in 1977 is probably North Slope operations coming on line.

Cell: V76

Comment: Rick Heede:
Standard Oil Company (Ohio) Annual Report 1979, Operating Statistics, shows "net production of natural gas" for 1970 through 1979.

Cell: AN76

Comment: Rick Heede:
Natural gas production for 1980-1984 from Standard Oil (Indiana) (1985) Annual Report, p. 50.

Cell: F77

Comment: Rick Heede:
Standard Oil Company (Indiana) Annual Report 1975, Five-Year Operating Summary; data in net production of crude oil and natural gas liquids, kbbl / day.

Cell: G77

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: W77

Comment: Rick Heede:
Standard Oil Company (Indiana) Annual Report 1975, Five-Year Operating Summary; data in net production of crude oil and natural gas liquids, kbbl / day.

Cell: U78

Comment: Rick Heede:
BP gas sales.

Cell: G79

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:** X79
Comment: Rick Heede:
Atlantic Richfield (1975) Annual Report for 1974. Natural gas sales US only. No mention of foreign production or sales.
- Cell:** F81
Comment: Rick Heede:
Oil production (net) for 1975-1979 from Standard Oil (Indiana) (1980) Annual Report, p. 47.
- Cell:** G81
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:** W81
Comment: Rick Heede:
Gas production for 1975-1979 from Standard Oil (Indiana) (1980) Annual Report, p. 47.
- Cell:** X81
Comment: Rick Heede:
Atlantic Richfield (1977) Annual Report for 1976. "Natural gas sales United States, million cf per day."
- Cell:** G82
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:** X82
Comment: Rick Heede:
ARCO annual report 1980, p. 54, shows "natural gas sales, domestic and foreign, million cf per day," for 1976 - 1980.
- Cell:** D83
Comment: Rick Heede:
British Petroleum Company Annual Report, 1981, p. 20, shows "group crude oil sources" 1977-1981, in thousand bbl per day.
- Cell:** U83
Comment: Rick Heede:
British Petroleum Company Annual Report, 1981, p. 20, shows "group sales of natural gas" 1977-1981, in million cubic metres per day (10.1, 10.9, 9.4, 8.7, and 9.8 million Cm /d, respectively), converted to million cf /day at 35.135 cf per cubic meter.
- Cell:** AP84
Comment: Rick Heede:
Our photocopy of BP annual report for 1978 might be missing pages on which coal sales or production is stated.
- Cell:** AP85
Comment: Rick Heede:
BP annual report for 1983, p. 53, reports coal sales in million tonnes for 1979-1983.
- Cell:** K86
Comment: Rick Heede:
Sohio data is interpolated for 1980-1983.
- Cell:** U86
Comment: Rick Heede:
British Petroleum Company PLC annual report, 1984, shows natural gas sales, in million cubic feet per day, for both BP group and Sohio, separately. CMS enters these data in BP and Sohio columns, respectively.
- Cell:** G87
Comment: Rick Heede:
ARCO annual report 1983 shows "crude oil nd 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:** W87
Comment: Rick Heede:
Gas data for 1981-1984 from Amoco (1986) AnnRpt 1985.
- Cell:** X87
Comment: Rick Heede:
ARCO annual report 1983, p. 1, shows "natural gas sales, million cf per day," for 1981-1983.
- Cell:** AM87
Comment: Rick Heede:
ARCO annual report 1983 shows coal shipments 1981-1983.
- Cell:** AM89
Comment: Rick Heede:
Coal shipment data (which we take as equivalent to production) for 1984-1987 from ARCO (1988) Annual Report 1987, p. 60.
- Cell:** G90
Comment: Rick Heede:
ARCO data
- Cell:** K90
Comment: Rick Heede:
Oil & Gas Journal OGJ400 for 1984, 1985, and 1986. OGJ lists the company as "Standard Oil Company" and "Standard Oil Company (Ohio)."
- Cell:** X90
Comment: Rick Heede:
ARCO annual report 1986, Highlights, shows "natural gas sales, million cf per day," for 1984-1986.
- Cell:** AA90
Comment: Rick Heede:
Gas SALES data 1984-1985 from BP (1986) AnnRpt. No production data available.
- Cell:** AB90
Comment: Rick Heede:
Oil & Gas Journal OGJ400 for 1985, 1986, and 1987 (our photocopy of 1984 is missing the first 153 company listings, and the Table on "The Top 20 in US and World Gas Production," page 96, does not list Standard Oil Company (Sohio), unlike the following years. The upshot is that we cannot resolve the discrepancy in gas production between 1985 (525 Bcf) and 1986 (85.5 Bcf).
- Cell:** AP90
Comment: Rick Heede:
BP annual report for 1988, p. 60, reports coal sales in million tonnes for 1984-1988.
- Cell:** L91
Comment: Rick Heede:
Oil production 1985-2003 from Oil & Gas Journal (various) OGJ Databook.
- Cell:** AC91
Comment: Rick Heede:
Oil & Gas Journal (various) OGJ100 or OGJ200 natural gas production estimates.
- Cell:** D92
Comment: Rick Heede:
Oil production plus NGLs for 1986-1990 from BP (1991) Annual Report, p. 7 (Summary Statistical Information).
- Cell:** J92
Comment: Rick Heede:
Oil production plus NGLs for 1986-1990 from BP (1991) Annual Report, p. 7 (Summary Statistical Information).
- Cell:** U92
Comment: Rick Heede:
Natural gas production for 1986-1990 from BP (1991) Annual Report, p. 7 (Summary Statistical Information).
- Cell:** G93
Comment: Rick Heede:
ARCO data.
- Cell:** X93

Comment: Rick Heede:

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

Cell: AM94

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: G95

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: M95

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: X95

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: K96

Comment: Rick Heede:

CMS has not found any BritOil annual reports (fruitless search for electronic copies online).

Cell: J97

Comment: Rick Heede:

Data 1990-1999 from OGJ100 databooks.

Cell: AA97

Comment: Rick Heede:

Sources: OGJ100 for 1990-1999, estimates 2000-2004 are from BP's annual report 2004.

Cell: AM99

Comment: Rick Heede:

ARCO annual report 1993, Highlights, shows "coal shipments" for 1989-1993 in million tons; in 1993, 10.2 million tons foreign and 37.5 million tons domestic.

Cell: AD100

Comment: Rick Heede:

Oil & Gas Journal (various) OGJ100 or OGJ200 natural gas production estimates.

Cell: AM100

Comment: Rick Heede:

EIA Coal Industry Annual 1994, p. 23.

Cell: AM101

Comment: Rick Heede:

EIA Coal Industry Annual 1995, p. 24.

Cell: D102

Comment: Rick Heede:

BP Annual Report for 2000, p. 68, crude oil production "net of royalties" for 1996 through 2000. The BP report does not clearly state whether NGLs are included or excluded.
Geography of BP crude oil production in 2000: UK (534 k bbl per day), USA (729 k bbl per day), and other (665 k bbl per day), total (1,928 k bbl per day).

Cell: U102

Comment: Rick Heede:

BP Annual Report for 2000, p. 68, natural gas production "net of royalties."

Cell: AM102

Comment: Rick Heede:

EIA Coal Industry Annual 1997, p. 23, ARCO 51.013 million tons.

Cell: AM103

Comment: Rick Heede:

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

Cell: M104

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: AA104

Comment: Rick Heede:

BP production for 1998-2004 from BP Annual Report.
OGJ (2001) datum for BP gas is 2,095 Bcf in 1998. 1997 = 2,216 Bcf.

Cell: AM104

Comment: Rick Heede:

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

Cell: M105

Comment: Rick Heede:

No ARCO oil or gas production data in OGJ2001 or 2000 found.

Cell: AD105

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: J106

Comment: Rick Heede:

Production estimates 2000-2004 are from BP's annual report 2004. The overlap in years 2000-2003 with Oil & Gas Journal's OGJ100 differ: OGJ are somewhat lower (690 in 2000, 677 in 2001, and 711 million bbl/yr in 2002) is due to O&GJ reporting net production "after royalties."
Production prior to 2000 is from Oil & Gas Journal.

Cell: K106

Comment: Rick Heede:

http://en.wikipedia.org/wiki/Burmah_Oil_Company_Ltd. "The Burmah Oil Company was founded in Glasgow, Scotland in 1886 by David Sime Cargill to develop oil interests on the Indian subcontinent. It became an early and major shareholder in British Petroleum, so restricted its downstream interests to the subcontinent, where BP had no business. It played a major role in the oil industry in South Asia for about a century through its subsidiaries and in discovery of oil in the Middle East through its significant interest in British Petroleum. It marketed under the BOC brand in Burma, Pakistan and Assam (in India) and through a joint venture Burmah-Shell with Shell in the rest of India. Burmah Oil Company created mechanised drilling in Magwe Division's oil fields (Yenangyaung, Chauk, and Minbu). Until 1901, when Standard Oil Company began operating in Burma (also known as Myanmar), Burmah Oil Company was the sole oil company to operate in Burma. The company operated in Burma until 1963, when Ne Win nationalised all industries in the country. The company was involved in a landmark legal case, *Burmah Oil Co. v Lord Advocate*. In 1966, Castrol was acquired by Burmah, which was renamed Burmah-Castrol. In 2000, Burmah-Castrol was acquired by the then BP Amoco plc (now renamed BP plc). A two-volume history of the company was written by T.A.B. Corley: *A history of the Burmah Oil Company, 1886-1924* (published 1983) and *A history of the Burmah Oil Company, Vol 2, 1924-66* (published 1988)."
CMS has not reviewed the Corley works, and has not secured any Burmah annual reports (fruitless search for electronic copies online).

Cell: U106

Comment: Rick Heede:

Data from BP (2005) Annual Report 2004, p. 108. Reported in kbbl/d.

Cell: AA106

Comment: Rick Heede:

Data from BP (2005) Annual Report 2004, p. 108. Reported in kbbl/d.

Cell: H109

Comment: Rick Heede:

BP Product emissions, www.bp.com/extendedsectiongenericarticle.do?categoryId=2011564&contentId=2017151. Viewed 8Apr05.
The CMS emissions estimates ignore BP's own assessment chiefly because BP is here estimating emissions from total marketed products, and CMS is estimating emissions only from each entity's net production. That said, we commend BP for its carbon "product stewardship" in this regard.
Quoted in full: "Methods for measuring and reporting operating emissions have evolved over several years. In 2003, we started developing a system for quantifying greenhouse gas (GHG) emissions from use of our products. In 2003 we also started developing a new way of measuring the positive impacts our cleaner products have on greenhouse gas (GHG) emission levels. This is vital because we believe that simply targeting an absolute reduction in emissions from our products would lead to the wrong outcome - cutting back production; including production of cleaner products."

Product GHG emissions in 2003. We estimate total emissions from use of BP products sold in 2003 at 1,298 million tonnes. We have assumed that 100% of carbon in our products was oxidised to carbon dioxide (CO₂). We have used this simplifying approach to ensure that the numbers presented are simple and clear. Our approach does not take into account the length of time that some of our products (including some petrochemicals, bitumen and lubricants) are in use, nor the post consumer treatment of the products.

We break down the emissions in the following way:

Coal (divested during 2003): 15 million tonnes CO₂

Fuels and lubricants: 590 million tonnes CO₂

Gas: 610 million tonnes CO₂

Petrochemicals: 83 million tonnes CO₂

These estimates indicate that GHG emissions from BP products sold (including coal, oil based products, gas and chemicals) are about 15 times greater than from BP operations. Emissions from products sold are greater than from the oil and gas we extract because we purchase additional oil and gas for refining, processing and retail." *

* Total: 1,298 million tonnes CO₂. (= 354 MtC; my CJP est 2001 = 120 MtC oil + gas only).

Cell: AN109

Comment: Rick Heede:

BP Annual Report 2004, p.58, "In 2003, the group sold its 50% interest in Kaltim Prima Coal, an Indonesian company." No coal production data is reported. However, in BP's report on "BP Product emissions" (see www.bp.com/extendedsectiongenericarticle.do?categoryId=2011564&contentId=2017151) shows emissions from coal production (noted as divested during 2003) resulting in emissions of 15 million tonnes CO₂. This suggests mining (at CMS carbon content [thermal coal assumed] of 2.18 tonnes CO₂ per tonne of coal produced) suggests BP coal production of 15/2.18 = 6.88 million tonnes of coal. CMS does not have a record of BP's 50% ownership of Kaltim Prima Coal, hence only assumes (until ownership and production data becomes available) for 2002 and 2003.

Cell: D110

Comment: Rick Heede:

BP 2005 annual report confirms 2004 datum (2.531 million bbl /day), and reports 2.562 million bbl /day in 2005.

Cell: U110

Comment: Rick Heede:

BP 2005 annual report confirms 2004 datum (8.503 Bcf/day), and reports 8.424 Bcf/day in 2005.

Cell: J111

Comment: Rick Heede:

Oil & Gas Journal OGJ100, 17Sep07, p. 41.

Cell: D112

Comment: Rick Heede:

BP 2008 Annual Rpt, p.18. Includes groups liquids production and equity-accounted entities (in 2008, for example, 1.26 and 1.14 million bbl per day, respectively).

Cell: U112

Comment: Rick Heede (Dec09):

BP 2008 Annual Rpt, p.18. Includes group natural gas production and equity-accounted entities (in 2008, for example, 7.28 and 1.06 Bcf per day, respectively).

Cell: D115

Comment: Rick Heede:

BP AR 2010, pg 55, total subsidiaries and equity accounted entities

Cell: U115

Comment: Rick Heede:

BP AR 2010 pdf pg 56, total subsidiaries and equity accounted entities

Cell: M116

Comment: Rick Heede (Jun10):

Krosinsky sent BP brief (which values spilled oil (1,888 m³ in 2006 at 15 million GBP) or \$1,681/bbl, for BP's Macondo blow out in the Gulf (at USGS Best Case 20,000 bbl/day, or 1.06 million bbl through day 53, or \$1.78 billion. Calculation by CMS.

Spill is on-going, flow rate estimates increasing (USGS 20,000 to 40,000 bbl per day), re-assessment by National Incident Command Flow Rate Technical Group under way.

CMS will investigate the gas-oil ratio and estimate methane content and fraction reaching the surface and atmosphere. See Ari Leifer, UC-SB, and FRITG Plume Team. CMS calcs below preliminary:

BP.com Accessed 12Jun10, 4:36 pm MST, Gulf of Mexico Response / Subsea operational update: For the last 12 hours on June 11 (noon to midnight), approximately 7,835 barrels of oil were collected and 15.7 million cubic feet of natural gas were flared. On June 11, a total of approximately 15,550 barrels of oil were collected and 31.2 million cubic feet of natural gas were flared. Total oil collected since the LMRP Cap containment system was implemented is approximately 104,300 barrels. Operations were stable.

CMS: If we assume mid-point USGS leakage estimate of 30,000 bbl per day and that half is captured by BP's LMRP Cap containment system, further assume that the oil-gas ratio is the same for captured and escaped hydrocarbons, then 31.2 MMcf times (15,000/15,550 or 0.9646 =) 30.1 MMcf gas escapes per day, times 53 days to date = 1.595 Bcf. 1 Bcf, if combusted, equals 0.0582 MtCO₂. However, as methane (at 25xCO₂) equals 1.455 MtCO₂e. Daily rate of 0.031 Bcf = 0.0018MtCO₂ if combusted or 0.0451 MtCO₂e as methane. Compare BP's gas production in 2008 (3.044 Tcf) and emissions of 177 MtCO₂ (daily rate of 0.485 MtCO₂, 10.75 times Gulf gas spill rate of methane as CO₂e. Not adjusted for transit time of natural gas from well-head to surface, nor for non-methane in gas-flow, nor CH absorption, chemical, or biological degradation (i.e., assumes 100 percent of gas is methane and all reaches the atmosphere).

Cell: D117

Comment: Rick Heede:

Data for 1981-1983 from Amoco (1986) Annual Report 1985, p. 49.

Cell: F119

Comment: Rick Heede:

Production data by subsidiaries and equity-accounted entities from BP Annual Report 2015, page 231.

Cell: W119

Comment: Rick Heede:

Production data by subsidiaries and equity-accounted entities from BP Annual Report 2015, page 231.

Cell: D120

Comment: Heede:

Crude oil + NGL, BP Annual Report and 20-F 2015, page 32.

Cell: D121

Comment: Rick Heede:

BP AnnRpt 2015 and SEC Form 20-F, page 32. Crude oil plus natural gas liquids (1,137 and 95 kbpd, respectively). 2015 annual net production totals 450 Mb, whereas 2014 production totaled 703 Mb.

Large drop in production in 2015 is not explained (and is contradicted by data on page 230).

BP AnnRpt 2015, p 230 shows crude and NGL production of 1,946 kbpd and 99 kbpd, respectively (thus annual liquids production of 746 Mb). This difference is unexplained. Verify which data are correct.

Which Heede did with Craig Marshall, Head of BP Investor Relations North America, Marshall's reply 22August 2016: BP reply from Craig Marshall: "Apologies for the delay in replying to you. I can assure you can rely on the data on pg 230/1. The reason for the difference is that the data on pg32 is for our Upstream Segment only, and excludes production from our Rosneft shareholding, hence the total production data is less. If you add back the Rosneft production data, as detailed on pg 230/1, you will see that the numbers reconcile exactly."

CAI therefore uses the BP data on AnnRpt 2015, page 230-231:

Cell: U121

Comment: Rick Heede:

BP AnnRpt and SEC Form 20-F, page 32. Natural gas production, net of royalties, for 2015 of 5,951 Mcfpd. 2014 listed as 6,016 Mcfpd, 2013 as 6,259 Mcfpd. Prior years not adjusted.

As for Crude oil, we verified with Craig Marshall (BP Investor Relations) that data on page 231 accounts for net production including Rosneft, totaling 7,146 Mcfpd (2,608 Bcf/yr).

Cell: D122

Comment: Rick Heede:

BP 20-F for 2016, page 254. Crude oil (incl condensate) and NGL. Includes Total Subsidiaries: Crude Oil: 943 + NGL 82, and BP share of equity-accounted entities: 1,015 crude + 8 NGL (all kbbbl/day).

Note: Production net of royalties on page 38 shows 1,208 kbbbl per day liquids, and 5,796 Mcf per day gas. AS Mitchell explained in 2015, the page 38 data "is for our Upstream Segment only, and excludes production from our Rosneft shareholding, hence the total production data is less

Cell: U122

Comment: Rick Heede:

BP AnnRpt & 20-F for 2017, page 216. Sum of natural gas production from subsidiaries and from equity-accounted entities (BP share).

Cell: D123

Comment: Rick Heede:

BP AnnRpt & 20-F for 2017, page 216. Sum of production of crude oil nd NGL from subsidiaries and from equity-accounted entities (BP share).

Cell: D124

Comment: Rick Heede:

BP plc (2019) Annual Report and 20-F for 2018. Page 135 shows oil and NGL production by BP subsidiaries and oil and NGL production by equity-accounted entities (including Rosneft). Of BP's total production of 2.191 Mbpd, Canadian production of 24,000 bpd in Canada is bitumen.

Production (net of royalties) p. 27 shows liquids production of subsidiaries of 1,139 kbpd, plus equity-accounted entities of 129 kbpd. See Table below.

Cell: U124

Comment: Rick Heede:

BP plc (2019) Annual Report and 20-F for 2018. Page 135 shows subsidiary and BP equity share of Natural Gas production in 2018.