

# Crude oil and NGL extraction data

Richard Heede  
Climate Mitigation Services  
File started: 11 January 2005  
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## Royal Dutch Shell plc, The Netherlands & United Kingdom

Investor-owned

www.shell.com Den Haag & London

### Production / Extraction data Crude Oil & NGL

Year

Company 1	Company 2	Company 3	Company 4	Subtotal	Company 1	Company 2	Company 3	Company 4	Total
Thousand bbl /d	Thousand bbl /d	Thousand bbl /d	Thousand bbl /d	Thousand bbl /d	Million bbl /yr	Million bbl /yr	Million tonnes/yr	Million bbl /yr	Million bbl /yr
Royal Dutch Shell plc	Royal Dutch Shell plc				Royal Dutch Shell plc	Royal Dutch Shell plc	Royal Dutch Company	Shell Union, Shell Oil (US)	Total

- 17 1890
- 18 1891
- 19 1892
- 20 1893
- 21 1894
- 22 1895
- 23 1896
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- 68 1941
- 69 1942
- 70 1943
- 71 1944
- 72 1945
- 73 1946
- 74 1947
- 75 1948

Telaga Said, Dutch million liter /yr	Telaga Said, Dutch thousand bbl /d	Pangkalan Brandan million cases /yr	Pangkalan Brandan thousand bbl /d	Royal Dutch thousand bbl /d	Royal Dutch Million bbl /yr	Royal Dutch Million bbl /yr	Royal Dutch Company	Shell Union, Shell Oil (US)	Royal Dutch Million bbl /yr
15	0.258			0.26	0.1				0.1
30	0.517	0.24	0.16	0.67	0.2				0.2
76	1.310	0.96	0.63	1.94	0.7				0.7
100	1.723	1.34	0.87	2.59	0.9				0.9
136	2.344	1.85	1.21	3.55	1.3				1.3
360	6.204	4.57	2.98	9.18	3.4				3
0.13	430	7.410	Perlak 1900-07	Perlak	7.41	2.7			3
2.57	135	2.326	thousand tonnes/yr	thousand bbl /d	2.33	0.8			1
5.00	100	1.723	8	0.15	1.87	0.7			1
	36	0.620	150	3.01	3.63	1.3			1
	30	0.517	163	3.26	3.78	1.4			1
	14	0.379	195	3.92	4.30	1.6			2
	14	0.258	201	4.04	4.30	1.6			2
	12		189	3.80	3.80	1.4			1
	11	Perlak + Roumania	669	13.43	13.43	4.9			5
	10	Perlak + Roumania	917	18.42	18.42	6.7			7
		Roumania only	710	14.26	14.26	5.2			5
		Roumania only	840	16.87	16.87	6.2			6
		Roumania only	1,070	21.49	21.49	7.8			8
		Roumania only	1,060	21.29	21.29	7.8			8
		Royal Dutch Shell	2,337	46.93	46.93	17.1			17
		Royal Dutch Shell	3,780	75.91	75.91	27.7			28
		Roumania only	1,260	25.30	25.30	9.2			9
		Royal Dutch Shell	775	15.57	15.57	5.7			6
		Royal Dutch Shell	4,734	95.07	95.07	34.7			35
		Royal Dutch Shell	4,822	96.83	96.83	35.3			35
		US operations:			16.9				17
		thousand bb/d			30.0				30
		24.70			43.9				44
		34.74			54.4				54
		44.78			65.7				66
		54.82			107.2		Million tonnes		107
		64.86			98.1	13.44			98
		74.90			94.1	12.89			94
					103.7	14.22			104
					124.1	17.00			124
					161.1	22.06			161
						24.30			177
						23.98			170
						20.53			150
						20.99			153
						21.95		Wolverine Petr.	160
						24.08		million bbl /yr	176
						26.62		0.50	194
						28.17			206
						31.99			234
						29.92			218
						22.14			162
						23.25			170
						24.41			178
						25.63			187
						26.91			196
						28.26		US operations:	206
						29.59		Not added to Sum	216
						32.70			239
						40.09			293
						48.03			351



**FINANCIAL AND OPERATIONAL HIGHLIGHTS**

	2008	2007	2006	2005	2004
Segment earnings (\$ million)					
Exploration & Production	20,235	14,686	14,544	13,577	9,522
Gas & Power	5,328	2,781	2,633	1,378	1,774
Oil Sands	941	582	651	661	301
Total Upstream earnings (\$ million)	26,504	18,049	17,828	15,616	11,597
Upstream net cash from operating activities [A] (\$ million)	35,460	25,832	26,429	22,115	18,978
Crude oil production (thousand b/d)	1,693	1,818	1,948	1,998	2,173
Natural gas production available for sale (million scf/d)	8,569	8,214	8,368	8,263	8,808
Mined Oil Sands production (thousand b/d)	78	81	82	95	80
Total production (thousand boe/d) [B]	3,248	3,315	3,473	3,518	3,772
Equity LNG sales volume (million tonnes)	13.1	13.2	12.1	10.7	10.2
Oil Sands sales volumes (thousand b/d)	114	125	133	143	127

Shell (2009) Five-Year Fact Book, page 31.

Annual oil from daily prod'n	230
Annual oil from daily prod'n	275

630.0
753.0

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
76		1949							324			70.1	324	
77		1950							367			72.2	367	
78		1951							429			86.2	429	
79		1952							466			96.1	466	
80		1953							481			104.3	481	
81		1954							455			97.7	455	
82		1955							497				497	
83		1956							550				550	
84		1957							603				603	
85		1958							568				568	
86		1959							639				639	
87		1960							642				642	
88		1961							651				651	
89		1962							711				711	
90		1963							730				730	
91		1964							808				808	
92		1965							874				874	
93		1966							967				967	
94		1967							994				994	
95		1968							1,062				1,062	
96		1969							1,203				1,203	
97		1970							1,338				1,338	
98		1971							1,972				1,972	
99		1972							2,043				2,043	
100		1973							2,149				2,149	
101		1974							1,893				1,893	
102		1975							1,271				1,271	
103		1976							1,212				1,212	
104		1977							1,171				1,171	
105		1978							1,092				1,092	
106		1979							1,039				1,039	
107		1980							493				493	
108		1981							460				460	
109		1982							499				499	
110		1983							546				546	
111		1984							587				587	
112		1985							598				598	
113		1986							658				658	
114		1987							645				645	
115		1988							645				645	
116		1989							676				676	
117		1990							692				725	
118		1991							760				794	
119		1992							750				789	
120		1993							747				789	
121		1994							767				829	
122		1995							790				860	
123		1996							843				907	
124		1997							850				916	
125		1998							859				917	
126		1999							823				890	
127		2000							826				916	
128		2001							807				883	
129		2002							861				861	
130		2003							868				868	
131		2004							822				822	
132		2005							764				764	
133		2006							741				741	
134		2007							693				693	
135		2008							646				646	
136		2009							606				606	
137		2010							617				617	
138														
139		<b>Total</b>		na	na	na	na	na	52,156	700	4,622	misc	56,962	
140														

(Oil & NGL continued)



Shell logo 1955



Shell logo 1961

Gross prod'n	Net production	gross over net
1,430	1,246	14.8%
1,555	1,361	14.3%
1,725	1,508	14.4%
1,895	1,652	14.7%
1,782	1,556	14.5%
2,012	1,752	14.8%
2,021	1,759	14.9%
2,055	1,783	15.3%
2,244	1,947	15.3%
2,305	1,999	15.3%
2,537	2,215	14.5%
2,722	2,395	13.7%
2,981	2,648	12.6%

base: net prod'n:

1954-1966 ave:

14.5%

Corresponding net %

87.31%

based on ESTIMATED net production

1967-1979 net production estimated

from net of gross 1954-1966

(cell G89)

Total production PRIOR to net of gross

for 1967-979: 21,119

million bbl

Total production AFTER net of gross

for 1967-979: 18,439

million bbl

Reduction: 2,680

million bbl

Reduct'n 1967-79 12.7%

Red'n 1892-2010 4.5%

See cell comments for background on discontinuity

Oil & Gas Journal OGJ100

1985-1998

Enterprise Oil UK

33.2

33.9

39.3

41.8

61.9

70.1

63.6

65.7

58.4

66.7

90.0

75.5

Acquired 2002



	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	
1	<b>Natural gas extraction data</b>														
2															
3	<b>Richard Heede</b>														
4	<b>Climate Mitigation Services</b>														
5	File started: 11 January 2005														
6	Last modified: April 2013														
7															
8															
9	<b>Royal Dutch/Shell Group, The Netherlands &amp; United Kingdom</b>												Investor-owned		
10	www.shell.com                      Den Haag & London														
11	<b>Production / Extraction data</b>														
12	<b>Natural Gas</b>														
13	Company 1	Company 2	Company 3	Company 4	Subtotal	Company 1	Company 2	Company 3	Company 4	Total					
14	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				
15	Royal Dutch/Shell Group 1954-					Royal Dutch/Shell Group 1987-2008					Total				
16															
17	1890														
18	1891														
19	1892														
20	1893														
21	1894														
22	1895														
23	1896														
24	1897														
25	1898														
26	1899														
27	1900														
28	1901														
29	1902	Joint Shell & Royal Dutch production reporting as of agreement, Jun1902?													
30	1903														
31	1904														
32	1905														
33	1906														
34	1907	Shell Transport and Royal Dutch "amalgamation" takes effect in Jan1907.													
35	1908														
36	1909	Thermal cracking adopted in 1909													
37	1910														
38	1911														
39	1912														
40	1913														
41	1914														
42	1915														
43	1916														
44	1917														
45	1918														
46	1919														
47	1920														
48	1921														
49	1922														
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51	1924														
52	1925														
53	1926														
54	1927														
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56	1929														
57	1930														
58	1931														
59	1932														
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67	1940														
68	1941														
69	1942														
70	1943														
71	1944														
72	1945														
73	1946														
74	1947														
75	1948														

1901, oil:	45.00	thousand tons
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Estimate of wasted gas (equiv Bcf/yr)	280 cf/bbl
Thermal cracking adopted in 1909	1.7
	2.2
	2.2
	4.8
	7.8
	2.6
	1.6
	9.9
	9.7
	4.7
	8.4
	12.3
	15.2
	18.4
	30.0
	27.5
	26.3
	29.0
	34.7
	45.1
	49.7
	47.7
	42.0
	42.9
	44.9
	49.2
<b>Total wasted gas, not added to gas production</b>	<b>570.5</b>

	Royal Dutch
	Bcf/yr
estimated	51
estimated	55
estimated	59
estimated	64
estimated	69
estimated	74
estimated	80
estimated	86
estimated	93
estimated	100
estimated	108
estimated	116
estimated	125
estimated	135
estimated	145
estimated	156
estimated	168
estimated	181
estimated	195

O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
76	1949										estimated	210	
77	1950										estimated	226	
78	1951										estimated	244	
79	1952										estimated	263	
80	1953										estimated	283	
81	1954												
82	1955												
83	1956												
84	1957												
85	1958												
86	1959												
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104	1977												
105	1978												
106	1979												
107	1980												
108	1981												
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118	1991												
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127	2000												
128	2001												
129	2002												
130	2003												
131	2004												
132	2005												
133	2006												
134	2007												
135	2008												
136	2009												
137	2010												
138													
139	<b>Total</b>		na	na	na	na	na	na	76,573	6,062		120,080	

(Natural Gas continued)

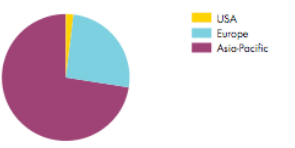
Shell Sustainability Report 2010, page 32.

	2010 GHG	2010 CO2e
	million tonnes	million tonnes
CO2	72.00	72.00
CH4	0.14	2.86
N2O	0.00	0.62
HFCs	0.00	0.03
Flaring	10.30	10.30
Total		85.81

1.03	305
	315
	336
	347
	349
	384
	454
	491
	578

1,786	"natural gas sales"	1,786		
2,010	"natural gas sales"	2,010		
2,149	"natural gas sales"	2,149		
2,462	"natural gas sales"	2,462		
2,890	"natural gas sales"	2,890		
3,467	"natural gas sales"	3,467		
4,224	"natural gas sales"	4,224		
4,961	"natural gas sales"	4,961		
5,345	"natural gas sales"	5,345		
5,933	"natural gas sales"	5,933		
6,351	"natural gas sales"	6,351		
6,787	"natural gas sales"	6,787		
6,621	"natural gas sales"	6,621		
6,714	"natural gas sales"	6,714		
6,674	"natural gas sales"	6,674		
6,439	"natural gas sales"	6,439		
6,516	"natural gas sales"	6,516		
6,257	interpolated	6,257		
5,998	interpolated	5,998		
5,739	interpolated	5,739		
5,480		5,480		
5,723		5,723		
6,137		6,137		
6,205		6,205		
6,538		6,538		

2008 LNG SALES VOLUMES



Year	Shell LNG sales (million tonnes/yr)
2002	10.2
2003	10.7
2004	12.1
2005	13.2
2006	13.1

Year	Enterprise Oil UK
2002	56.5
2003	65.8
2004	81.5
2005	94.0
2006	88.8
2007	92.1
2008	102.1
2009	86.0
2010	74.1

excludes LNG sales  
excludes LNG sales  
excludes LNG sales  
excludes LNG sales

# Additional data

**Richard Heede**  
**Climate Mitigation Services**  
 File started: 11 January 2005  
 Last modified: October 2012

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## Shell production data 1918-1928, 2008-2010, and environmental data

### Summing Shell & Royal Dutch crude oil production data

From Peter Roderick, Aug06, Guildhall Library, London

1918	1918	1919	1919	1920	1920
tons	bbl	tons	bbl	tons	bbl
1,706,675	12,261,960	2,092,917	15,036,995	2,284,136	16,674,193
71,366	512,744	84,342	605,973	144,412	1,037,558
277,300	1,992,319	231,179	1,660,953	148,901	1,069,810
300,140	2,156,418	238,632	1,714,501	327,891	2,393,604
		38,869	279,262		US 17,520,000
			2,888,000		Mexico 4,266,000
			6,703,295		78,570
			853,000		49,500
		42,500	305,350		355,643
<b>Total bbl:</b>	<b>16,923,441</b>	<b>Total bbl:</b>	<b>30,047,330</b>	<b>Total bbl:</b>	<b>43,890,369</b>

1921	1921	1922	1922	1923	1923
tons	bbl	tons	bbl	tons	bbl
2,295,538	16,757,427	8,999,345	65,695,219	14,686,031	107,208,026
199,858	1,435,921				
181,231	1,302,092				
333,645	2,435,609				
	US 17,520,000				
	Mexico 12,863,000				
241,130	1,760,249				
51,970	373,389				
<b>Total bbl:</b>	<b>54,447,687</b>	<b>Total bbl:</b>	<b>65,695,219</b>	<b>Total bbl:</b>	<b>107,208,026</b>

1924	1924	1925	1925	1926	1926
tonnes	bbl	tonnes	bbl	tonnes	bbl
13,442,138	98,127,607	12,890,131	94,097,956	2,875,185	20,988,851
				711,637	5,194,950
				171,918	1,255,001
				632,202	4,542,186
				2,317,006	16,914,144
				3,475,661	25,372,325
				851,735	6,217,666
				1,318,590	9,625,707
				1,803,789	13,167,660
				59,638	435,357
<b>Total bbl:</b>	<b>98,127,607</b>	<b>Total bbl:</b>	<b>94,097,956</b>	<b>Total bbl:</b>	<b>103,713,847</b>
million tonnes	13.44	million tonnes	12.89	million tonnes	14.22

	1927	1927	1928	1928
	tonnes	bbl	tonnes	bbl
Dutch East Indies	3,448,116	25,171,247	3,971,045	28,988,629
Sarawak	711,756	5,195,819	751,092	5,482,972
Egypt	183,284	1,337,973	268,461	1,959,765
Romania	593,828	4,334,944	705,854	5,152,734
rox	2,694,312	19,668,478	3,890,767	28,402,599
spc	3,203,719	23,387,149	3,812,233	27,829,301
Mexico	594,753	4,341,697	528,979	3,861,547
Mexico	987,528	7,208,954	893,681	6,523,871
Venezuela	1,535,856	11,211,749		
Venezuela	2,961,857	21,621,556	7,125,339	52,014,975
Trinidad	65,841	480,639	65,187	475,865
Argentina	17,701	129,217	50,773	370,643
<b>Total bbl:</b>	<b>124,089,422</b>	<b>Total bbl:</b>	<b>161,062,900</b>	
million tonnes	17.00	million tonnes	22.06	

	2010		2009		2008	
	Shell subsidiaries	Shell share of equity-accounted investments	Shell subsidiaries	Shell share of equity-accounted investments	Shell subsidiaries	Shell share of equity-accounted investments
<b>Europe</b>						
Denmark	98	-	107	-	114	-
Germany	3	-	3	-	3	-
Italy	33	-	30	-	32	-
The Netherlands	-	5	-	5	-	5
Norway	48	-	62	-	67	-
UK	98	-	110	-	154	-
<b>Total Europe</b>	<b>280</b>	<b>5</b>	<b>312</b>	<b>5</b>	<b>370</b>	<b>5</b>
<b>Asia</b>						
Brunei	3	77	2	76	1	80
China	4	-	11	-	14	-
Iran	2	-	5	-	10	-
Malaysia	40	-	39	-	38	-
Oman	199	-	195	-	192	-
Philippines	4	-	4	-	5	-
Russia	-	117	-	106	-	70
Syria	19	-	22	-	22	-
United Arab Emirates	-	135	-	127	-	146
Others	-	1	-	1	-	1
<b>Total Asia</b>	<b>271</b>	<b>330</b>	<b>278</b>	<b>310</b>	<b>282</b>	<b>297</b>
<b>Oceania</b>						
Australia	18	29	18	35	17	39
New Zealand	12	-	12	-	12	-
<b>Total Oceania</b>	<b>30</b>	<b>29</b>	<b>30</b>	<b>35</b>	<b>29</b>	<b>39</b>
<b>Africa</b>						
Cameroon	10	-	12	-	13	-
Egypt	10	-	12	-	9	-
Gabon	34	-	29	-	30	-
Nigeria	302	-	231	-	266	-
<b>Total Africa</b>	<b>356</b>	<b>-</b>	<b>284</b>	<b>-</b>	<b>318</b>	<b>-</b>
<b>North America</b>						
Canada	20	-	20	-	46(B)	-
USA	163	74	195	78	190	82
<b>Total North America</b>	<b>183</b>	<b>74</b>	<b>215</b>	<b>78</b>	<b>236</b>	<b>82</b>
<b>South America</b>						
Brazil	53	-	24	-	23	-
Others	1	7	1	9	1	11
<b>Total South America</b>	<b>54</b>	<b>7</b>	<b>25</b>	<b>9</b>	<b>24</b>	<b>11</b>
<b>Total</b>	<b>1,174</b>	<b>445</b>	<b>1,144</b>	<b>437</b>	<b>1,259</b>	<b>434</b>

[A] Includes natural gas liquids. Royalty purchases are excluded. Reflects 100% of production attributable to subsidiaries; except in respect of PSCs, where the figures shown represent the entitlement of the subsidiaries concerned under those contracts.

[B] Includes bitumen production.

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KEY STATISTICS	\$ MILLION		
	2010	2009	2008
Revenue (including inter-segment sales)	336,216	250,362	412,813
Segment earnings [A]	2,950	258	5,309
Including:			
Production and manufacturing expenses	10,592	11,829	12,225
Selling, distribution and administrative expenses	13,716	14,505	14,451
Depreciation, depletion and amortisation	4,254	4,399	3,574
Share of earnings of equity-accounted investments [A]	948	661	834
Net capital investment [B]	2,358	6,232	3,104
Refinery availability (%)	92	93	91
Chemical plant availability (%)	94	92	94
Refinery processing intake (thousand b/d)	3,197	3,067	3,388
Oil products sales volumes (thousand b/d)	6,460	6,156	6,568
Chemicals sales volumes (thousand tonnes)	20,653	18,311	20,327

[A] With effect from 2010, Downstream segment earnings are presented on a current cost of supplies basis. See Notes 2 and 7 to the "Consolidated Financial Statements" for further information. Comparative information is consistently presented.

[B] See Note 7 to the "Consolidated Financial Statements".

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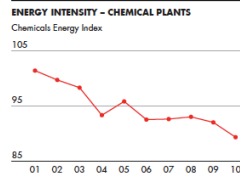
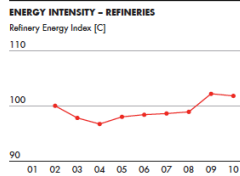
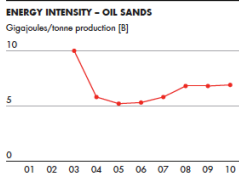
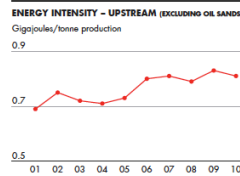
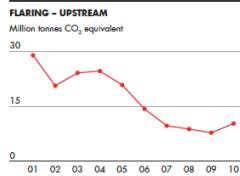
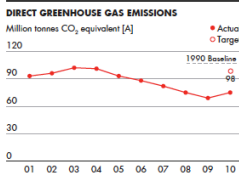
(Natural gas continued)

ENVIRONMENTAL DATA

	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001
Direct greenhouse gas emissions (GHGs) [A]										
Total GHGs (million tonnes CO <sub>2</sub> equivalent)	75	69	75	82	88	93	101	102	96	93
Carbon dioxide (CO <sub>2</sub> ) (million tonnes)	72	66	72	79	85	89	96	97	92	87
Methane (CH <sub>4</sub> ) (thousand tonnes)	136	127	126	119	124	173	192	187	196	261
Nitrous oxide (N <sub>2</sub> O) (thousand tonnes)	2	2	2	2	2	2	2	3	4	3
Hydrofluorocarbons (HFCs) (tonnes)	24	25	23	28	24	20	13	9	11	4
Flaring [B]										
Flaring (Upstream) (million tonnes CO <sub>2</sub> equivalent)	10.3	7.8	8.8	9.7	14.3	20.8	24.6	24.1	20.6	28.9
Flaring (Upstream) (million tonnes hydrocarbon flared)	3.5	2.6	2.8	3.4	4.8	7.0	8.1	8.1	6.8	9.5
Energy intensity										
Upstream excluding Oil Sands (gigajoules per tonne production) [C]	0.81	0.83	0.79	0.81	0.80	0.73	0.71	0.72	0.75	0.69
Oil Sands (gigajoules per tonne production) [D]	6.9	6.8	6.8	5.8	5.3	5.2	5.8	10.0	n/c	n/c

Source	Production	MtCO <sub>2</sub> e	Percent of total
Scope 1		75.0	23.8%
Flaring		10.3	3.3%
Oil & NGL product emissions (million)	617	229.3	72.9%
Natural gas product emissions (Bcf)	3,396	-	0.0%
<b>Total</b>		<b>314.6</b>	<b>100.0%</b>

Oil NGL coefficient	0.3714	MtCO <sub>2</sub> /million bbl
Gas coefficient	-	MtCO <sub>2</sub> /Bcf



[A] Target and baseline adjusted to reflect portfolio changes  
 [B] Includes mining and upgrading operations  
 [C] Indexed to 2002; based on 2000 Solomon Eth™ methodology

Shell Sustainability Report 2010, page 29.

Shell CDP 2012	MtCO <sub>2</sub> e
Scope 1: CO <sub>2</sub>	70.700
Scope 1: CH <sub>4</sub>	2.800
Scope 1: N <sub>2</sub> O	0.440
Scope 1: HFCs	0.028
Scope 1: total	73.968
Use of products	570.000
Total	643.968
Percent Scope 1	11.5%

Sources of Scope 3 emissions	metric tonnes CO <sub>2</sub> e
Use of sold products	570000000

Royal Dutch Shell submission to Carbon Disclosure Project for 2012, section 15.1: Scope 3 emissions. In tonnes CO<sub>2</sub>e.

NATURAL GAS PRODUCTION [A]

	2010		2009		2008	
	Shell subsidiaries	Shell share of equity-accounted investments	Shell subsidiaries	Shell share of equity-accounted investments	Shell subsidiaries	Shell share of equity-accounted investments
Europe						
Denmark	328	-	335	-	404	-
Germany	267	-	311	-	333	-
Italy	38	-	31	-	29	-
The Netherlands	-	1,997	-	1,639	-	1,741
Norway	643	-	593	-	492	-
UK	541	-	561	-	678	-
<b>Total Europe</b>	<b>1,817</b>	<b>1,997</b>	<b>1,831</b>	<b>1,639</b>	<b>1,938</b>	<b>1,741</b>
Asia						
Brunei	55	497	44	473	51	499
China	253	-	257	-	231	-
Malaysia	807	-	886	-	874	-
Pakistan	96	-	92	-	86	-
Philippines	110	-	121	-	113	-
Russia	-	359	-	192	-	-
Syria	3	-	4	-	6	-
<b>Total Asia</b>	<b>1,224</b>	<b>856</b>	<b>1,404</b>	<b>665</b>	<b>1,361</b>	<b>499</b>
Oceania						
Australia	404	204	383	216	345	215
New Zealand	202	-	218	-	216	-
<b>Total Oceania</b>	<b>606</b>	<b>204</b>	<b>601</b>	<b>216</b>	<b>561</b>	<b>215</b>
Africa						
Egypt	137	-	163	-	145	-
Nigeria	587	-	292	-	552	-
Tanzania	724	-	455	-	697	-
North America						
Canada	563	-	530	-	406	-
USA	1,149	4	1,055	6	1,048	5
<b>Total North America</b>	<b>1,712</b>	<b>4</b>	<b>1,585</b>	<b>6</b>	<b>1,454</b>	<b>5</b>
South America						
Argentina	52	-	63	-	65	-
Brazil	9	-	18	-	33	-
<b>Total South America</b>	<b>61</b>	<b>-</b>	<b>81</b>	<b>-</b>	<b>98</b>	<b>-</b>
<b>Total</b>	<b>6,244</b>	<b>3,061</b>	<b>5,957</b>	<b>2,526</b>	<b>6,109</b>	<b>2,460</b>

[A] Reflects 100% of production attributable to subsidiaries, except in respect of PSCs, where the figures shown represent the entitlement of the companies concerned under those contracts.

SYNTHETIC CRUDE OIL PRODUCTION

	2010	2009
Shell subsidiaries	72	80

BITUMEN PRODUCTION

	2010	2009
Shell subsidiaries	18	19

MINED OIL SANDS PRODUCTION

	2008
Albion Oil Sands project after royalties	78

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	2010	2009	2008
	million SCF/day	million SCF/day	million SCF/day
Shell subsidiaries	6,244	5,957	6,109
Shell equity share	3,061	2,526	2,460
<b>total</b>	<b>9,305</b>	<b>8,483</b>	<b>8,569</b>
<b>total per year (Bc)</b>	<b>3,396</b>	<b>3,096</b>	<b>3,128</b>

	2010	2009	2008
	k bbl /day	k bbl /day	k bbl /day
Shell subsidiaries	1,174	1,144	1,259
Shell equity share	445	437	434
Synthetic crude	72	80	78
<b>total</b>	<b>1,691</b>	<b>1,661</b>	<b>1,771</b>
<b>total per year (million bbl)</b>	<b>617.22</b>	<b>606.27</b>	<b>646.42</b>

**Cell:** K15**Comment:** Rick Heede:

Royal Dutch Petroleum and Shell Transport agreed to an alliance in 1907. Royal Dutch moved its headquarters to Curacao during World War 2. Howarth, Stephen (1997) "A Century in Oil: The Shell Transport and trading Company 1897-1997" does not report on oil production by its sister company Royal Dutch.

**Cell:** AD16**Comment:** Rick Heede:

Shell Transport and Royal Dutch crude oil produced in Netherlands India, Sarawak, Egypt, and Romania (Astra), respectively in 1918, shown in yellow cells.

**Cell:** AF16**Comment:** Rick Heede:

Shell Transport and Royal Dutch crude oil produced in Netherlands India, Sarawak, Egypt, Romania (Astra), Romania (Baicoi), North America (Mid-continent), North America (California), Mexico, and Venezuela, respectively, in 1919, shown in yellow cells.

**Cell:** AH16**Comment:** Rick Heede:

Shell Transport and Royal Dutch crude oil produced in Dutch East Indies, Sarawak, Egypt, Romania (Astra), North America (Mid-continent + California: 35,000 + 13,000 bbl per day totals 17,520,000 bbl/yr), Mexico, Venezuela, and Trinidad, respectively, in 1920 and/or 1921 (the annual reports are not clear about the actual reporting years), shown in yellow cells. The data is reported in differing units (imperial tons, metric tonnes, and barrels); CMS has applied the appropriate conversion factors in each case.

**Cell:** J17**Comment:** Rick Heede:

Sum of working columns F plus I (thousand bbl per day from Telaga Said (1892-1904) and Pangkalan (1893-1897) / Perlak (1900-1904 / Royal Dutch annual reports for 1912, 1913, and 1917 (data for 1915-1917). All summed to thousand bbl per day in column "I" and in million bbl per year in this column.

**Cell:** S20**Comment:** Rick Heede:

Howarth, p. 47, "the minimum annual supply had not reached 50,000 tons." CMS assumes 45,000 tons. This equals 330,000 bbl. Since this refers only to East Indies supply contracts, CMS does not use this as a company production statistic.

**Cell:** D25**Comment:** Rick Heede:

"Royal Dutch wells began to produce ... Shell's Sanga Sanga well began to run dry ... at Balikpapan (Borneo), Mark Abrahams struck oil again, at 750 feet. Production multiplied more than eight-fold, to 130 barrels a day -- equivalent to 200,000 cases annually." Note: 1 case = 2 tins @ 5 gallons. Source: Howarth (1997) A Century in Oil, p. 46.

**Cell:** D27**Comment:** Rick Heede:

Howarth, p. 55: "By mid-1900 the new wells were producing a respectable 5,000 barrels a day, with production continuing to rise steadily."

**Cell:** U29**Comment:** Rick Heede:

See Howarth, p. 64. Presumably only linked for purposes of transport and non-competition in Asia ...

**Cell:** AD30**Comment:** Rick Heede:

Shell Transport and Royal Dutch crude oil produced in Dutch East Indies, Sarawak, Egypt, Romania (Astra), North America (Mid-continent + California: 35,000 + 13,000 bbl per day totals 17,520,000 bbl/yr), Mexico, Venezuela, and Trinidad, respectively, in 1920 and/or 1921 (the annual reports are not clear about the actual reporting years), shown in yellow cells. The data is reported in differing units (imperial tons, metric tonnes, and barrels); CMS has applied the appropriate conversion factors in each case.

**Cell:** W34**Comment:** Rick Heede:

Howarth, pp. 69-76.

**Cell:** F35**Comment:** Rick Heede:

Natural gas SALES for 1975 and 1976 from Royal Dutch Petroleum Company (1977) Annual Report 1976, p. 22. Gas production is not reported.

**Cell:** Y36**Comment:** Rick Heede:

Howarth, p. 145, reports wasted gas from thermal cracking dominant at Shell refineries from 1909 through at least the mid-1930s. CMS assumes 80 percent of the gas produced is not utilized, 10 cubic meters per barrel refined =  $10 * 35.3 \text{ cf/m}^3 * 0.8 = 280 \text{ cf per bbl}$ .

**Cell:** G39**Comment:** Rick Heede:

Royal Dutch Shell crude oil production is reported for 1912 and 1913 for its fields in Netherlands India, Russia (four regional companies, e.g., Caspian, Grozny, North Caucasian, New Schibayeff), Egypt, US (Roxanna in Texas, and California Oilfields Ltd), Roumania (Astra Roumana), and Sarawak. Notes from Peter Roderick, Nov06. CMS adds annual production given in tons and bbl per year. 1912 total = 2.336787 million tons (assumed tonnes); 1913 = 3.78043 million tons.

**Cell:** D40**Comment:** Rick Heede:

Howarth, p. 93: Shell purchased California Oilfield Ltd in 1913; Shell's North American production rose from 723,000 bbl in 1913 to 4.7 million bbl in 1914. No mention of global production between 1900 and at least 1914, except for occasional reference to individual fields. In 1914, Shell finally struck paydirt in Mexico with a gusher producing 100,000 bbl per day. However, a few months later, the U.S. invaded Mexico, President Huerta was expelled from office, the country descended into chaos, and the oil camps were abandoned. Howarth, p. 95.

**Cell:** AH44**Comment:** Rick Heede:

Shell Transport and Royal Dutch crude oil produced in Dutch East Indies, Sarawak, Egypt, Romania (Astra), North America (Roxana Petrol Corp = 2,317,606 tonnes plus Shell of California = 3,475,661), Mexico, and Venezuela, respectively, in 1926, shown in yellow cells. The data is reported in differing units (imperial tons, metric tonnes); CMS has applied the appropriate conversion factors in each case.

**Cell:** J45**Comment:** Rick Heede:

Crude oil production for the Shell and Royal Dutch amalgamation from annual reports for 1918 through 1928 (courtesy Peter Roderick, Guildford Library, London, Aug06). Production is reported in various units shown at the right of this worksheet, columns AC through AH, for each year. CMS uses appropriate conversion units for imperial tons metric tonnes for each regional reporting standard. Sums are shown in barrels per year and million tonnes per year.

**Cell:** E47**Comment:** Rick Heede:

Partial, but the preponderance of US producing properties Shell owned in the US (California's Signal Hill and Roxana in Texas. Other properties were acquired in Oklahoma (1921), no production data reported. Howarth, p. 125. Shows California and Roxana in 1920 (16.5 and 8.2 thousand bbl per day) and 1925 (53.5 and 21.4 thousand bbl per day).

**Cell:** D52

**Comment:** Rick Heede:

Howarth, p. 151, shows production data for 1925 and 1929.

**Cell:** L53

**Comment:** Rick Heede:

Shell Union Oil Corporation (New York), annual reports for 1926 through 1930. Shell Union is assumed here to be accounts for Shell's US operations only. For 1930, in which year we have crude oil production from a Royal Dutch Petroleum annual report, we do NOT add US Shell and Royal Dutch, but instead use the US oil production data as a percentage of Royal Dutch's global production and on the basis of this quantitative relation extrapolate backwards to 1926. Note: For obvious reasons, this is a preliminary estimate in lieu of having global oil production data for both Shell and Royal Dutch Petroleum. No natural gas production is mentioned in the Shell Union reports.

**Cell:** D57

**Comment:** Rick Heede:

While Howarth's history of Shell Transport and Trading offers scant production data, it does (p. 157) give Shell's 1930 production as 466,500 bbl per day (and world production of 3.86 million bbl per day). Howarth, Stephen (1997) "A Century in Oil: The Shell Transport and Trading Company 1897-1997," Weidenfeld & Nicolson, London, 397 pp.

**Cell:** K57

**Comment:** Rick Heede:

Oil production data for 1930-1931 from Royal Dutch Petroleum (1932) Annual Report, p. 12. Note: this report also noted that the company's managing director (August Kessler) "put forward a proposal ... to create along practical lines a sort of international organization to prevent the various producers from continuing to produce so disjointedly." p. 11. As Yergin notes in "The Prize" (pp. 265-269), this "As Is" memoranda that attempted to restrain and stabilize production ran afoul of antitrust laws and competitive drives and collapsed in the mid-1930s.

**Cell:** AA57

**Comment:** Rick Heede:

Royal Dutch natural gas production data is not publicly available and we assume a 7.17 percent annual growth rate (average rate from 1954-1962) in estimated production from 1930 to 1953. At this rate total natural gas production is nearly equal to the gas wasted in refineries (calculated in column Y). This estimated production or marketed natural gas 1930-1953 will be revised if we locate published production data, or Royal Dutch Shell corrects the estimate with documented production data.

**Cell:** L59

**Comment:** Rick Heede:

Oil production by subsidiaries of Shell US are shown in Beaton (1957, p. 784). Wolverine Petroleum, for example, totals 496,000 bbl in 1934; the company was "dissolved" in 1938; the company's production in 1924 totaled 1.83 million bbl. Comar Oil Copany, Roxana Petroleum, and Shell Pacific are all detailed in this table. All this production is incorporated in Shell and Royal Dutch for the years covered, 1912-1955.

**Cell:** AE59

**Comment:** Rick Heede:

Shell Transport and Royal Dutch crude oil produced in Dutch East Indies, Sarawak, Egypt, Romania (Astra), North America (Roxana Petrol Corp = 2,694,312 tonnes plus Shell of California = 3,203,719 tonnes), Mexico (Corona and Aguila), Venezuela (Caribbean and Venezuelan concessions), Trinidad, and Argentina, respectively, in 1927, shown in yellow cells. The data is reported in metric tonnes; total in 1927 = 16,998,551 tonnes.

**Cell:** AG59

**Comment:** Rick Heede:

Shell Transport and Royal Dutch crude oil produced in Dutch East Indies, Sarawak, Egypt, Romania (Astra), North America (Shell Petroleum Corp, frmly Roxana Petrol Corp = 3,890,767 tonnes plus Shell Oil Company, frmly Shell of California = 3,812,233 tonnes), Mexico (Corona and Aguila), Venezuela (Caribbean and Venezuelan concessions), Trinidad, and Argentina, respectively, in 1927, shown in yellow cells. The data is reported in metric tonnes; total in 1928 = 22,063,411 tonnes.

**Cell:** K60

**Comment:** Rick Heede:

Oil production data for 1933-1934 from Royal Dutch Petroleum (1935) Annual Report, p. 9. .

**Cell:** K62

**Comment:** Rick Heede:

Oil production data for 1935-1936 from Royal Dutch Petroleum (1937) Annual Report, p. 11.

**Cell:** K64

**Comment:** Rick Heede:

Oil production data for 1937-1938 from Royal Dutch Petroleum (1939) Annual Report, p. 9.

**Cell:** J68

**Comment:** Rick Heede:

Oil production data for 1944, although very incomplete, is from Royal Dutch Petroleum (1945) Annual Report, pp. 6-10. Royal Dutch producing assets were either substantially destroyed or in enemy hands during the war. But we can piece together an estimate of 1944 production if we (a) use reported production in Iraq (1.212 million tonnes) and restored Roumanian production ("77 percent of pre-war production," or 1.167 million tonnes), and (b) assume that 1939-1944 production in Allied areas remained at 1938 levels: Egypt = 0.226 Mt, Venezuela = 11.31 Mt, US = 7.68 Mt, Argentina = 0.544 Mt. (c) Far Eastern production are assumed destroyed or in Japanese hands, Mexican assets have been appropriated by the Govt, and the minor German Reich production (0.01 Mt) has, of course, been appropriated by the Nazis. Production in Iraq has increased during the war (from 0.978 Mt in 1938 to 1.212 Mt in 1944). Total estimated Royal Dutch oil production for 1939 through 1944: 22.139 million tonnes. The resulting estimated Royal Dutch production in 1944 may be conservative given likely increased production in the US. We add 5 percent growth per year 1940-1944.

**Cell:** K71

**Comment:** Rick Heede:

Oil production data for 1944, although very incomplete, is from Royal Dutch Petroleum (1945) Annual Report, pp. 6-10. Royal Dutch producing assets were either substantially destroyed or in enemy hands during the war. But we can piece together an estimate of 1944 production if we (a) use reported production in Iraq (1.212 million tonnes) and restored Roumanian production ("77 percent of pre-war production," or 1.167 million tonnes), and (b) assume that 1939-1944 production in Allied areas remained at 1938 levels: Egypt = 0.226 Mt, Venezuela = 11.31 Mt, US = 7.68 Mt, Argentina = 0.544 Mt. (c) Far Eastern production are assumed destroyed or in Japanese hands, Mexican assets have been appropriated by the Govt, and the minor German Reich production (0.01 Mt) has, of course, been appropriated by the Nazis. Production in Iraq has increased during the war (from 0.978 Mt in 1938 to 1.212 Mt in 1944). Total estimated Royal Dutch oil production for 1939 through 1944: 22.139 million tonnes. The resulting estimated Royal Dutch production in 1944 may be conservative given likely increased production in the US.

**Cell:** K72

**Comment:** Rick Heede:

Oil production data for 1945 from Royal Dutch Petroleum (1946) Annual Report, p. 8. Note: The Annual reports for 1939 through 1944.

**Cell:** L72

**Comment:** Rick Heede:

Shell Oil Company, Annual report for 1949, with "net crude oil produced" for 1945-1949. CMS has only a copy of the title page and the table of statistics (p.20), and neither makes it clear that this is reporting on US operations only, which we can only surmise since reported quantities are a small fraction of those reported in Royal Dutch Shell annual reports for the same years (see column I). These production quantities are entered here, but assumed to be included in Royal Dutch Shell annual production and are NOT added to "Sum Production" (column M).

**Cell:** D73

**Comment:** Rick Heede:

Howarth, A Century in Oil, p. 223.

**Cell:** K74

**Comment:** Rick Heede:



Oil production data for 1947 and 1948 is from Royal Dutch Petroleum (1949) Annual Report, p. 9.

World production in 1948 totalled 488.97 million tonnes (of which US production was 292.5 Mt, or 59.8 percent); Royal Dutch equalled 9.8 percent of world total; p. 8.

**Cell:** I76

**Comment:** Rick Heede:

Oil production data for 1949 and 1950 is from Royal Dutch Petroleum (1951) Annual Report, p. 13. Original data reported in million bbl: "Production of crude oil and natural gasoline, Royal Dutch/Shell Group of Companies, gross production" including 60.1 million bbl (1949) and 87.7 million bbl (1950) of "crude oil received under long-term contracts" which are subtracted from production reported here: 383.7 million bbl (Mbb) less 60.1 Mbb = 323.6 Mbb in 1949; 454.3 Mbb less 87.7 Mbb = 366.6 million bbl in 1950.

**Cell:** L77

**Comment:** Rick Heede:

Shell Oil Company, Annual report for 1954, with "net crude oil produced" for 1950-1954. CMS has only a copy of the title page and the table of statistics (p.26), and neither makes it clear that this reporting on US operations only, which we can only surmise since reported quantities are a small fraction of those reported in Royal Dutch Shell annual reports for the same years (see column I). These production quantities are entered here, but assumed to be included in Royal Dutch Shell annual production and are NOT added to "Sum Production" (column M).

**Cell:** I78

**Comment:** Rick Heede:

Oil production data for 1951 and 1952 is from Royal Dutch Petroleum (1953) Annual Report, p. 6-7. We report only gross production of crude oil, not oil received under long-term contracts. 1952 production is taken from the 1954 annual report, since 1952 production was lowered from 471.8 to 465.5 million bbl.

**Cell:** I80

**Comment:** Rick Heede:

Oil production data for 1950 to 1953 is from Royal Dutch Petroleum (1955) Annual Report, p. 14.

**Cell:** E81

**Comment:** Rick Heede:

Crude oil production (both gross and net are listed here) for 1954 through 1962 from Royal Dutch Petroleum Company (1963) Annual Report 1962, p. 51. Per our protocol, we use data of net crude oil production as raw input to the calculation of carbon combusted into carbon dioxide. Also, Royal Dutch reports significant quantities (100.4 million bbl in 1954 and rising to 233.6 million bbl in 1962) of "quantities received under special supply contracts," which we do NOT include.

This presumably refers to Shell's contract with Gulf Oil in which "Gulf would produce, Shell would transport, refine, and market". Howarth, (1997) A Century in Oil, p.224. Oil came from Gulf Persian Gulf operations at a time when Shell could not fill its own demand. This agreement had been signed in 1948, when Shell's Asian production had not yet been fully restored. Shell, of course, had other producing properties.

**Cell:** W81

**Comment:** Rick Heede:

Natural gas SALES for 1954 through 1962 from Royal Dutch Petroleum Company (1963) Annual Report 1962, p. 51. Note: gas production data is unavailable, nor are data on gas purchases reported. Original data in billion cubic feet per year.

**Cell:** E90

**Comment:** Rick Heede:

Crude oil production (both gross and net are listed here) for 1963 through 1966 from Royal Dutch Petroleum Company (1967) Annual Report 1966, p. 71. Per our protocol, we use data of net crude oil production as raw input to the calculation of carbon combusted into carbon dioxide. Also, Royal Dutch reports significant quantities (256.2 million bbl in 1963 and rising to 314.3 million bbl in 1966) of "quantities received under special supply contracts," which we do NOT include. See cell note 1954 re: Gulf production agreement and 50:50 profit sharing.

**Cell:** R90

**Comment:** Rick Heede:

Natural gas SALES for 1963 through 1966 from Royal Dutch Petroleum Company (1967) Annual Report 1966, p. 27. Note: neither gas production nor gas purchase data are reported. Original data in million cubic feet per day.

**Cell:** D94

**Comment:** Rick Heede:

Crude oil production for 1967 through 1970 from Royal Dutch Petroleum Company (1971) Annual Report 1970, p. 34. Per our protocol, we use data of net crude oil production as raw input to the calculation of carbon combusted into carbon dioxide. However, Royal Dutch does not report net production for 1967 to 1970, and we use gross production. Also, Royal Dutch reports significant quantities (329.2 million bbl in 1967 and rising to 342.0 million bbl in 1970) of "quantities received under special supply contracts," which we do NOT include.

**Cell:** E94

**Comment:** Rick Heede:

We have ESTIMATED net production by multiplying reported gross production for 1967-1979 (Shell only reported gross) by the average net of gross for the period 1954-1966 when both net and gross was reported. This factor is 87.31 percent, calculated in cell G89.

**Cell:** R94

**Comment:** Rick Heede:

Natural gas SALES for 1967 through 1970 from Royal Dutch (1971) Annual Report, p. 34.

**Cell:** AE96

**Comment:** Rick Heede:

Shell SustRpt 2010, page 29: "Greenhouse gas emissions The direct greenhouse gas (GHG) emissions from facilities we operate were 75 million tonnes on a CO2-equivalent basis in 2010, a 9% increase on 2009. The main reason for this rise was increased production across the company, including higher production in Nigeria due to an improved security situation. Around 60% of our GHG emissions came from the refineries and chemical plants in our Downstream business. The production of oil and gas in our Upstream business accounted for around 35% of our GHG emissions, and our shipping activities for the remaining 5%. We continue to work on improving operational performance and energy efficiency to reduce GHG emissions. In 2010, we met the voluntary target we set in 1998 for our direct GHG emissions from facilities we operate to be at least 5% lower than our comparable 1990 level. Shell's GHG emissions in 2010 were around 25% lower than our comparable 1990 level. The indirect GHG emissions from our purchases of energy (electricity, heat and steam) were 10 million tonnes on a CO2-equivalent basis in 2010, 11% higher than in 2009. We estimate that the CO2 emissions from the use of the products we made were around 670 million tonnes in 2010."

**Cell:** AE97

**Comment:** Rick Heede:

SustRpt 2010, page 20: "In 2010, the flaring – or burning off – of natural gas in our Upstream business rose by 32% compared to 2009, to 10.3 million tonnes of CO2 equivalent. This was mainly due to increased oil production in Nigeria and the start of our contract in Iraq. Flaring made up nearly 14% of our total direct GHG emissions in 2010. Around 20% was operational flaring for safety reasons and during the start-up of Upstream facilities. We aim to minimise this operational flaring. The remaining 80% was continuous flaring from facilities where there is no infrastructure to capture the gas produced with oil, known as associated gas. Around 80% of this continuous flaring takes place in Nigeria where the security situation and a lack of funding from the government partner has previously slowed progress on projects to capture the associated gas (pages 18–19). Around 10% of the continuous flaring came from the Majnoon field in Iraq where we became the operator in 2010. We expect that flaring in Iraq will rise in future years as production increases and before equipment to capture the associated gas can be installed (page 17). When we acquire or become the operator of an existing facility that is already flaring or venting (releasing gas into the atmosphere) it takes time before these activities can be stopped."

**Cell:** D98

**Comment:** Rick Heede:

Crude oil production for 1971 through 1974 from Royal Dutch Petroleum Company (1975) Annual Report 1971, p. 15. Per our protocol, we use data of net crude oil production as raw input to the calculation of carbon combusted into carbon dioxide. However, Royal Dutch does not report net production for 1970 through 1974, and we use gross production. Furthermore, Royal Dutch does NOT report quantities of crude oil or products purchased from other producers or refiners. See 1954 cell note.

**Cell:** R98

**Comment:** Rick Heede:

Natural gas SALES for 1971 through 1974 from Royal Dutch (1975) Annual Report, p. 22.

**Cell:** D102

**Comment:** Rick Heede:

Crude oil supply, which appears to mean gross supply (both gross production and "local purchases", for 1975 and 1976 from Royal Dutch Petroleum Company (1977) Annual Report 1976, p. 16. Per our protocol, we use data of net crude oil production as raw input to the calculation of carbon combusted into carbon dioxide. However, Royal Dutch does not report net production for 1975-76, and we use gross production minus "local purchases": 291.3 million bbl in 1975 (798 kbb/d) and 339.4 million bbl in 1976 (930 kbb/d).

**Cell:** D104

**Comment:** Rick Heede:

Crude oil supply for 1977-1979 from Royal Dutch/Shell Group (1980) Annual Report, five-year operational comparisons, p. 20. Shell does not report net production, and we subtract "local purchases" from total supply:

1977: 4,847 - 1,171 = 3,676;

1978: 4,714 - 1,287 = 3,427;

1979: 4,555 - 1,296 = 3,259 kbb/d.

Note: Oil companies typically report on oil and natural gas reserves, often unaudited. Shell's reserve report for 1979, for example, shows oil production at (426) million barrels plus (76) Mbbbl from "group share of developed and undeveloped reserves of associated companies." Total reported crude oil production is thus 502 million bbl. It is not clear why production reported in this table (p. 57) differs from production reported at p. 20: 3,259 kbb/d = 1.190 billion bbl (after subtracting "local purchases"). This 688 million bbl cannot be explained by adding NGL production (which is not detailed in this annual report).

**Cell:** R104

**Comment:** Rick Heede:

Natural gas SALES for 1977-1979 from Royal Dutch/Shell Group (1980) Annual Report, five-year operational comparisons, p. 20.

**Cell:** E107

**Comment:** Rick Heede:

"Net equity crude oil production" — including natural gas liquids, and excluding royalty purchases — from the reserves of crude oil and natural gas liquids ..., including the Group share of associated companies." Royal Dutch/Shell Group (1985) SEC Form 20-F, p. 14.

RDSG annual reports for 1980-1995 appear not to have published crude oil supply data (substituting "production" in their reserve statements, which may underreport actual production). Net equity production as reported here also appear incongruous with previous annual reports and crude oil supplies (production less "local purchases"). See notes under 1970, 1974, 1976, and 1979 for details.

Note 1: the discontinuity between gross production in 1979 (from Shell annual report for 1979) and net production in 1980 (SEC Form 20-F) is very large and is not explained by royalty payments to host governments and other usual differences between gross and net. Net production in the SEC filing also includes natural gas liquids.

Note 2: Shell's reported daily net production on page 14 (SEC Form 20-F) agrees with data in the same report's Reserve table (pp. G29-G30) once group share of associated companies is added in (40 to 44 million bbl/yr).

**Cell:** W109

**Comment:** Rick Heede:

Natural gas production from Royal Dutch Petroleum Company (1985) SEC Form 20-F for Royal Dutch Shell Group of Companies changes to "proved developed and undeveloped reserves" of natural gas. Group share of associated companies is shown in the next column for the same years.

**Cell:** E112

**Comment:** Rick Heede:

"Net equity crude oil production" — including natural gas liquids, and excluding royalty purchases — from the reserves of crude oil and natural gas liquids ..., including the Group share of associated companies." Royal Dutch/Shell Group (1988) SEC Form 20-F, p. 12, includes data for oil, natural gas, and coal from 1983-1987 (we use 1985-1987 here).

**Cell:** W112

**Comment:** Rick Heede:

"Natural gas production" for 1985-1987 from Natural Gas Reserves Table in Royal Dutch Petroleum (1988) SEC Form 20-F, pp. G29-G31. First column of data lists production by Group companies; second column lists production by associated companies.

**Cell:** R114

**Comment:** Rick Heede:

"Natural gas sales from Group companies plus Group share of associated companies' production, plus royalty purchases" for 1983-1987 in Royal Dutch Petroleum (1988) SEC Form 20-F, p. 13. Sales data is entered for comparative reasons. We use gas production for 1985-1987 from the Natural Gas Reserves table at pp. G29-G31 (see Bcf column at right).

**Cell:** W115

**Comment:** Rick Heede:

The data source for Shell natural gas production has been lost, but is presumably Oil & Gas Journal.

**Cell:** D126

**Comment:** Rick Heede:

Production data 1999-2003 from Shell (2004) Financial and Operational Information 1999-2003, p. 44. Note: includes re-stated data from 1999-2002, thus differs somewhat from Oil & Gas Journal Data Book and Energy Intelligence (2003) Top 100 (for which production in 2000 = 2,284 and 2001 = 2,234 kbb/d).

**Cell:** R126

**Comment:** Rick Heede:

Production data 1999-2003 from Shell (2004) Financial and Operational Information 1999-2003, p. 44. Note: includes re-stated data from 1999-2002, thus differs somewhat from Oil & Gas Journal Data Book and Energy Intelligence (2003) Top 100 (in which production in 2000 = 8,212 and 2001 = 9,009 million cf/d).

**Cell:** E127

**Comment:** Rick Heede:

Cells in light blue are "derived data" in this case from production by an acquired company (Enterprise), for which production data is given in million bbls/yr. Ditto for gas in 2000-2001, gas production in billion cf/yr.

**Cell:** J127

**Comment:** Rick Heede:

Oil production data from Oil & Gas Journal (2002) OGJ100, p. 88. Data in million bbl/yr. Note: RDSG acquired Enterprise Oil PLC (UK), with substantial North Sea oil and gas production, in 2002.

**Cell:** X127

**Comment:** Rick Heede:

Oil production data from Oil & Gas Journal (2002) OGJ100, p. 88. Data in billion cf/yr. Note: RDSG acquired Enterprise Oil PLC (UK), with substantial North Sea oil and gas production, in 2002.

**Cell:** D136

**Comment:** Rick Heede:

AR 2010 pg 31 (pdf pg 33); total crude oil and nat gas liquids, Shell subsidiaries + Shell share of equity-accounted investments; note slightly lower reported production for 2008

**Cell:** A139

**Comment:** Rick Heede:

Shell CDP rpt 2012: Total Scope 1: 74.0 MtCO<sub>2</sub>e, Scope 2: 10.0 MtCO<sub>2</sub>e. Scope 1: Downstream: 39.80 MtCO<sub>2</sub>e, Upstream (other than flaring): 20.60 MtCO<sub>2</sub>e Upstream flaring: 10.00 MtCO<sub>2</sub>e, Shipping: 3.20 MtCO<sub>2</sub>e, Other: 0.30 MtCO<sub>2</sub>e. CO<sub>2</sub>: 70.70 MtCO<sub>2</sub> CH<sub>4</sub>: 2.80 MtCO<sub>2</sub>e N<sub>2</sub>O: 0.44 MtCO<sub>2</sub>e, HCFs: 0.028 MtCO<sub>2</sub>e. Also 240 TWh of fuel (of which 195.6 TWh of "own fuel"), plus 13.0 TWh of electricity, plus 17.6 TWh of steam. Scope 3 "use of products sold:" 570 MtCO<sub>2</sub>. Sum of Scope 1 plus products sold: 644 MtCO<sub>2</sub>e, of which Scope 1 is 11.49 percent.