

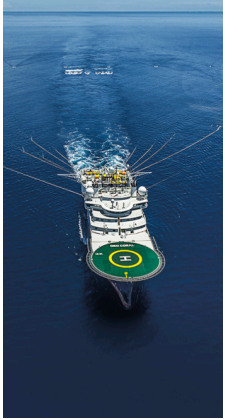
Oil and natural gas extraction data

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BG AR 2015, Glossary BG Group uses a conversion factor of 1 boe = 6 000 cubic feet of natural gas

British Gas Group, UK
 www.bg-group.com Reading

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



Production / Extraction data

Year	Crude Oil & NGL			Natural Gas			Miscellaneous	
	Net production	Net production	Net production	Net production	Net production	Net production		
	Thousand bbl /d	Million bbl /yr	Million bbl /yr	Million bbl oil eq/yr	Million SCM/yr	Billion cf/yr	Million tons/yr	Million tonnes/yr
			British Gas 1988-2015			British Gas 1963-2015		

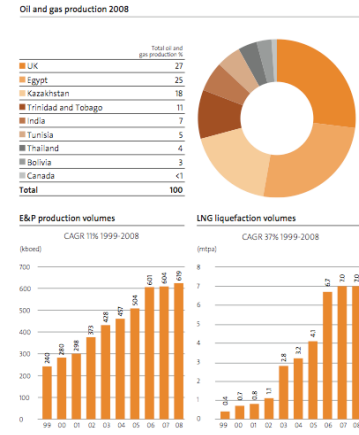


Emissions (tonnes)												
	Venting	Fugitive	Flaring	Fuel use	Electricity generation	Distribution losses	Total 2008	Total 2009 ⁽¹⁾	Total 2006 ⁽¹⁾	%/mboe 2008	%/mboe 2009 ⁽¹⁾	%/mboe 2006 ⁽¹⁾
Carbon dioxide	485 775	2	667 412	2 748 583	3 911 300	1 260	7 814 332	8 328 778	5 216 620	19 936	22 217	15 580
Carbon monoxide	—	—	2 170	5 703	2 299	—	10 172	8 918	6 677	25	24	26
Nitrogen oxides	—	—	750	13 259	4 146	—	18 155	18 371	13 592	45	49	41
Sulphur dioxide	—	—	3 618	9 549	560	—	13 727	10 955	9 216	34	29	28
Methane	5 156	390	2 407	368	581	36 089	44 991	45 759	44 824	111	122	134
Volatile organic compounds	5 689	69	732	322	84	3 564	10 460	10 513	10 619	26	28	32
Greenhouse gases (carbon dioxide equivalent)	594 053	8 201	726 254	2 777 511	3 956 088	759 134	8 821 241	9 355 329	6 199 524	21 827	24 955	18 515

BG Group, Data Book 2009, page 40.

BG Group GHG emissions			
2003	emissions	CO2e	% of total
CO2 vented	621,582	621,582	11.4%
CO2 fugitive	650	650	0.0%
CO2 flaring	411,049	411,049	7.5%
CO2 fuel use	1,141,650	1,141,650	21.0%
CO2 elec gen	1,721,146	1,721,146	31.6%
CO2 T&D loss	2,148	2,148	0.0%
Total CO2	3,898,225	3,898,225	71.6%
tCH4 tCO2e			
CH4 vented	6,563	137,823	2.5%
CH4 fugitive	1,098	23,058	0.4%
CH4 flaring	3,352	70,392	1.3%
CH4 fuel use	655	13,755	0.3%
CH4 elec gen	192	4,032	0.1%
CH4 T&D loss	61,854	1,298,934	23.9%
Total methane	73,714	1,547,994	28.4%
Total GHG	5,446,223	5,446,223	100%

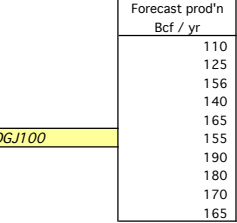
BG Group	
Gas production	Bcf / yr
estimated based on rpt sales 63-72	41.9
	45.4
	49.9
	53.8
Parliament data 1973-1990	60.2
	66.8
	75.0
	87.9
UK Parliament	114.5
million m ³ per yr	145.9
	4,557
	5,545
	6,259
	6,867
	7,842
	7,381
	7,011
	7,345
million bbl oil equiv	48.13
	47.99
	49.44
	51.98
	57.50
	58.80
	60.19
	57.11
	55.48
	57.38
1 bbl = 5,659 cf	



Gas sold	Million therms
	2,924
	3,169
	3,484
	3,755
	4,199
	4,664
	5,235
	6,133
	7,992
	10,180
	11,171

	OGJ100	million bbl /yr
1988	0.8	0.8
1989	16.4	16.4
1990	20.4	20.4
1991	22.5	22.5
1992	19.7	19.7
1993	19.9	19.9
1994	23.5	23.5
1995	20.5	20.5
1996	interpolate	21.7
1997	interpolate	22.8
1998	interpolate	24.0
1999	25.1	25.1
2000	24.8	24.8
2001	28.1	28.1
2002	41.9	42.2
2003	42.9	42.9
2004		47.0
2005		49.0
2006		51.7
2007		63.9
2008		65.9
2009		66.5
2010		63.5
2011	165	60.23
2012	173	63.15
2013	191	69.72
2014	222	81.03
2015	296	108.04

Unit	Value
million bbl oil equiv	48.13
	47.99
	49.44
	51.98
	57.50
	58.80
	60.19
	57.11
	55.48
	57.38
1 bbl = 5,659 cf	
mmboe	168
	156
	161
Bcf/day	2.50
	840.96
	893.52



Conversion rate of 5.659 Bcf gas per million bbl oil.

EI, 00-01, Mcf/d	EI, Bcf/yr
1,273	465
1,326	484



* 4/8/15 - Heede: BG in talks to be acquired by RDS Shell for 46 billion GBP. Acquisition effective 11Feb16.

Total	na	na	1,165	na	na	22,619
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Cell: I9**Comment:** Rick Heede:

The company was created in 1997 when British Gas plc divested Centrica and became BG plc, which was reorganised in 1999 as BG Group plc. BG Group plc is a British multinational oil and gas company headquartered in Reading, United Kingdom. It has operations in 25 countries across Africa, Asia, Australasia, Europe, North America and South America and produces around 680,000 barrels of oil equivalent per day. (Wikipedia) BG Group Profile. bg-group.com: BG Group is a world leader in natural gas, with a strategy focused on connecting competitively priced resources to specific, high-value markets. Active in more than 20 countries on five continents, BG Group has a broad portfolio of business interests focused on exploration and production and liquefied natural gas. It combines a deep understanding of gas markets with a proven track record in finding and commercialising reserves. While our headquarters are in United Kingdom (UK), the majority of our 6 000+ employees, drawn from more than 70 nationalities, work outside the UK.

Cell: E27**Comment:** Rick Heede (Jan10):

See BG table (in Data Book 2004, p. 49) in 2003: eg vented CO2 totals 0.622 MtCO2 + 0.411 MtCO2 from flaring vs methane: 0.138 MtCO2e (vented CH4) and 0.023 MtCO2 (fugitive CH4) and 0.070 MtCO2e (flaring CH4), plus 1.30 MtCO2e (CH4 T&D losses...?). All at CH4 at 21xCO2. CMS calc of total methane vs CO2 sources: methane 73,714 tonnes CH4 = 1.55 MtCO2e s total CO2 of 3.90 million, total GHG 5.45 MtCO2e, of which methane is 28.4 percent of total BG GGH emissions in 2003. Note that BG is chiefly gas production, plus LNG, plus electricity generation, etc.

Cell: J29**Comment:** Rick Heede:

CMS assumes that the data from the Parliamentary inquiry is correct, and further assumes that the proportion of production to sales (160 Bcf / 1,091 Bcf = 0.147) can be applied to sales data reported for 1963-1973; see notes below.

Cell: I39**Comment:** Rick Heede:

CMS received data via the UK Parliament, 22May06: www.publications.parliament.uk/pa/cm200506/cmhansrd/cm060522/text/60522w0473.htm#060523119000006
Alan Simpson: To ask the Secretary of State for Trade and Industry how much natural gas was produced by the British Gas Corporation in each year of its existence. [65886]
22 May 2006 : Column 1447W
Malcolm Wicks: The British Gas Corporation (BGC) existed from 1973 to 1986. During this period BGC had various gas production interests, as an operator or through an interest in production licences in the Rough, Morecambe South and Indefatigable fields; the extent of the interests varied between the different fields and through time. Full details are not readily available from the Department of Energy 'Brown Books' but the total production from these fields was: (data follows below for 1973-1986 in million cubic metres - presumably per annum).

Cell: J39**Comment:** Rick Heede:

British Gas Corporation report and accounts 1973, p. 10, shows sale of 2.8 Bcf per day, or 1,022 Bcf for 1973. The "supplies and operations" section mentions exploration activities, but no data on production; "Gas available" totaled 11,171 million therms, or 1,091 Bcf. The report suggests own production from oil- and coal-based gas and purchases primarily of natural gas, but unclear of source. CMS assumes that the data from the Parliamentary inquiry is correct, and further assumes that the proportion of production to sales (160 Bcf / 1,091 Bcf = 0.147) can be applied to sales data reported for 1963-1973; see above.

Cell: H47**Comment:** Rick Heede:

Gas production data 1981-1990 from BG (1991) Annual Report, p. 14. While the units are unclear, using billion cubic meters per year to Bcf/yr leads to a discontinuity with OGJ data by a factor of ~15 to one. Hence we assume data is shown in million bbl of oil equivalent, as the company data is in later years, at a conversion ratio of 1 mmboe = 5.6585 Bcf. Earlier annual reports do not show production data at all; instead show sales data in therms, landings, plant capacities, etc.

Cell: M50**Comment:** Rick Heede:

British Gas, Prospects and Pricing, Nov86, p. 62, forecasts equity production 1986-1995. This is substantially smaller quantities than the data supplied by Alan Simpson MP, May06; CMS relies on the later data, which also fits the Oil & Gas Journal data for 1991.

Cell: E54**Comment:** Rick Heede:

Oil and gas production for 1988-1995 from OGJ (various) OGJ100. No mention of BG Group in 1987 or 1996-2001.

Cell: D65**Comment:** Rick Heede:

From BG Group data book 2004, pp. 53. Data for 1999-2003.

EI data differs significantly (68 million bbl in 2000, and 77 million bbl in 2001). Oil and gas production data from Energy Intelligence (2003) Top 100: Ranking the World's Oil Companies, p. 108.

Cell: H66**Comment:** Rick Heede:

British Gas, annual report for 2003, p.6, shows gas production in million bbl of oil equivalent (at 6 Bcf per mmboe). This conversion is made in column J. Gross or net production is not specified.

Cell: L66**Comment:** Rick Heede:

Oil and gas production data from Energy Intelligence (2003) Top 100: Ranking the World's Oil Companies, p. 108.

Cell: F72**Comment:** Rick Heede:

BG (2009) Statistical Rpt, page 47. Roughly 50/50 oil and liquids.

Cell: H72**Comment:** Rick Heede:

BG (2009) Statistical Rpt, page 47. Data in million bbl of oil equivalent.

Cell: J74**Comment:** Rick Heede:

BG Group AR 2010, pg 139, updated 2008 value

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

BG Group Databook 2014, page 42: Oil and liquids production 2011-2013, 165, 173, 191 kboed. Page 42: "estimated net proved reserves of natural gas" (SEC): 10,797 Bcf and PRMS: 12,041 Bcf. However, "estimated net proved DEVELOPED reserves of natural gas" (SEC): 5,427 Bcf and PRMS: 5,474 Bcf.

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

Oil & Gas Journal OGJ100, Sep13 and Sep14.

Cell: H79**Comment:** Rick Heede:

BG Group Databook 2014, page 42: Oil and liquids production 2011-2013, 165, 173, 191 kboed. Also gas production in kpoed (no conversion rate shown): 476, 484, and 442 kboed; if gas production as 5,659 cf/bbl, then 442 kboed equals 2.5013 BCF per day, or 912.97 Bcf per year (in 2013)

Cell: D80**Comment:** Rick Heede:

BG Group Annual Report 2015, page 7. Oil production (2015) of 205 boepd, plus 91 kboepd of NGLs.

Cell: H80**Comment:** Rick Heede:

BG Group Annual Report 2015, page 7. Gas production in 2015 of 408 kboepd; we assume 6,000 cf per boe.