

Oil and natural gas extraction data

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Climate Mitigation Services
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Bahrain Petroleum Company

www.bapco.com Awali, Bahrain

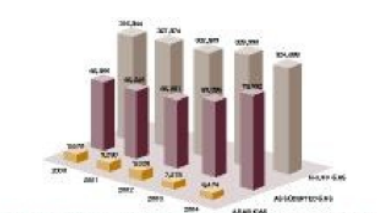
yellow column indicates original reported units **100% State-owned enterprise**

Production / Extraction data

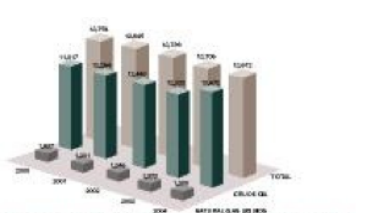
Year

Crude Oil & NGL			Natural Gas			OGJ estimates	
Net production	Net production	Net production	Net production	Net production	Net production		
thousand bbl /day	Million bbl /yr	Million bbl /yr	Billion cf/yr	Billion cf/yr	Billion cf/yr	Million tons/yr	Million tonnes/yr

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Production of Natural and Associated Gas (Million cubic feet)



Production of Crude Oil and Natural Gas Liquid (Thousand barrels)



BAPCO Annual Report 2004, page 12.

1 SCM 35.3147 cf

Year	Bahrain		Bahrain		Bahrain Petroleum		%	Notes
	gross production	net production	gross production	net production	gross production	net production		
thousand bbl /day	million bbl /yr	million bbl /yr	Bcf/yr	Bcf/yr	Bcf/yr	Bcf/yr		
1968		27.6	2.8	10%	2.2	0	10%	
1969		27.8	2.8	10%	33	11	10%	
1970		28.0	2.8	10%	25	12	10%	
1971		27.3	2.7	10%	25	18	2	10%
1972		25.5	2.6	10%	25	18	2	10%
1973		24.9	2.5	10%	83	57	6	10%
1974		24.6	2.5	10%	100	68	7	10%
1975		20.8	12.5	60%	102	73	44	60%
1976		21.3	12.8	60%	107	77	46	60%
1977	77	28.1	16.9	60%	interpolated	83	50	60%
1978	interpolated	25.6	15.3	60%	interpolated	88	53	60%
1979	interpolated	23.0	13.8	60%	interpolated	94	57	60%
1980	56	20.4	20.4	100%		100	100	100%
1981	54	19.7	19.7	100%		120	120	100%
1982	52	19.0	19.0	100%		130	130	100%
1983	51	18.6	18.6	100%		140	140	100%
1984	50	18.3	18.3	100%		133	133	100%
1985	48	17.5	17.5	100%		164	164	100%
1986	52	19.0	19.0	100%		180	180	100%
1987			14.3	OGJ100		176	176	OGJ100
1988			15.7			182	185	
1989			15.7			186	194	
1990			14.2		291	205	210	
1991			13.9		328	233	157	
1992			39.1		296	188	166	
1993			38.7		346	234	180	
1994			38.3		339	229	183	
1995			14.5		339	229	286	
1996			14.1		347	232	294	
1997			38.0		375	281	203	
1998			37.4		390	293	215	
1999			37.3		406	297	221	
2000			37.6		412	estimated from chart	390	Bapco
2001			63.4		426	estimated from chart	390	Bapco
2002			63.5		436	estimated from chart	400	Bapco
2003			63.5				416	Bapco
2004	BAPCO AnnRpt04	37.45	13.7	Bapco			410	Bapco
2005	BAPCO AnnRpt05	36.54	13.3	Bapco		million cf/day	470	Bapco
2006		35.90	13.1	Bapco		1,046	382	Bapco
2007	BAPCO AnnRpt07	34.39	12.6	Bapco		1,105	403	Bapco
2008	BAPCO AnnRpt08	32.86	12.0	Bapco		1,192	435	Bapco
2009	BAPCO AnnRpt09	32.19	11.8	Bapco		1,207	441	Bapco
2010	BAPCO AnnRpt10	31.88	11.6	Bapco		1,237	452	Bapco
Total	na	na	870		na	na	8,491	
							896	5,973

US Energy Information Administration, International Energy Statistics

www.eia.gov/emeu/internationalenergy.html

Vented & Flared of

	Bahrain		Bahrain				Bahrain		Bahrain	
	Crude oil, condensate, & NGPL k bbl per day	Updated April 2013 million bbl per yr	Gross NatGas Prod Bcf per year	Prod Market Gas Bcf per year	Reinjected NatGas Bcf per year	gross %	Vented & Flared Bcf per year	Dry NatGas Prod Bcf per year		
1980	56	20	NA	NA	NA		-	100		
1981	54	20	NA	NA	NA		-	120		
1982	52	19	NA	NA	NA		-	130		
1983	51	19	NA	NA	NA		16	140		
1984	50	18	NA	NA	NA		-	133		
1985	48	18	NA	NA	NA		-	164		
1986	52	19	NA	NA	NA		-	180		
1987	51	19	NA	NA	NA		-	217		
1988	52	19	NA	NA	NA		-	182		
1989	51	19	NA	NA	NA		-	186		
1990	47	17	291	208	75	0%	-	205		
1991	43	16	328	240	88	0%	-	233		
1992	44	16	296	202	94	0%	-	188		
1993	53	19	346	242	104	0%	-	234		
1994	54	20	339	238	102	0%	-	229		
1995	51	19	339	238	102	0%	-	229		
1996	45	16	347	241	106	0%	-	232		
1997	52	19	375	290	85	0%	-	281		
1998	48	17	390	302	88	0%	-	293		
1999	48	18	406	306	100	0%	-	297		
2000	48	18	412	311	101	0%	-	303		
2001	47	17	426	324	102	0%	-	314		
2002	47	17	436	341	95	0%	-	334		
2003	48	17	434	340	95	0%	-	340		
2004	48	18	438	344	94	0%	-	344		
2005	45	16	470	378	92	0%	-	378		
2006	46	17	488	400	88	0%	-	400		
2007	46	17	507	416	91	0%	-	416		
2008	46	17	541	438	102	0%	-	438		
2009	46	17	547	441	106	0%	-	441		
2010	44	16	551	451	100	0%	-	451		
2011	45	16	547	446	101	0%	-	446		
2012	46	17								
1990-2011 totals			9,256	7,137	2,110	-	-	7,026		

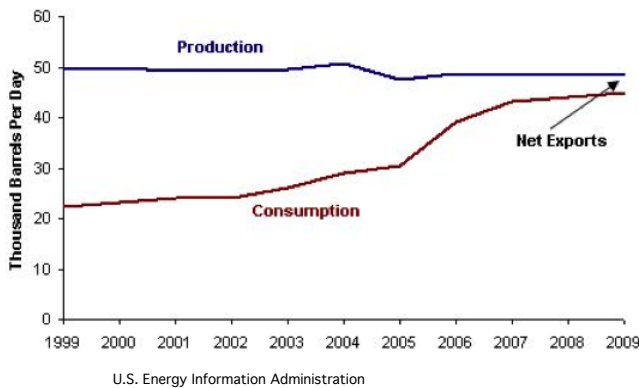
If gas combusted: 0.0534 MtCO2/Bcf
If methane vented: 1.1221 MtCO2e/Bcf

	Banagas
million SCM/day	Bcf/yr
1990	257.8

vented natural gas (Banaco prior to 1979)		If methane flared	If methane vented
million SCM/day	Bcf/yr	million tonnes CO2/yr	million tonnes CO2e/yr
3.0	38.7	2.07	43.39

Conflicting data. Take 2004: BAPCO reports production of 13.67 million bbl, refined 93.1 million bbl, and sold 55 million bbl abroad (Asia and Africa).
Resolved: BAPCO imported 79.4 million bbl of Arab light crude via the A-B pipeline from Saudi Arabia.
Saudi Arabia / Bahrain oil production sharing agreement from Abu Safah offshore field

Bahrain's Total Oil Production and Consumption, 1999-2009



Bahrain

Cell: I9

Comment: Rick Heede:

The BAPCO was established in 1929 in Canada by Standard Oil Company of California for oil exploration activities in Bahrain. It took over Bahrain's assets of Gulf Oil. In 1930 it obtained the only oil concession in Bahrain. On 31 May 1932, the company discovered the Awali oil field. In 1936 the Standard Oil Company of California signed an agreement with Texaco, which acquired a half of BAPCO's shares. In 1975 more than 60% BAPCO's shares was acquired by the Government of Bahrain. In 1980, all BAPCO's shares were taken over by the Government of Bahrain. In 1999 the current Bahrain Petroleum Company was created when the Bahrain National Oil Company, established in 1976, merged with BAPCO. Wikipedia, accessed February 2013.
1975: Govt of Bahrain acquires 60 percent interest in Bahrain National Oil Company, BANOCO (CalTex 40%)

Cell: M9

Comment: Rick Heede:

In 1975 more than 60% BAPCO's shares was acquired by the Government of Bahrain. In 1980, all BAPCO's shares were taken over by the Government of Bahrain. In 1999 the current Bahrain Petroleum Company was created when the Bahrain National Oil Company, established in 1976, merged with BAPCO.

Cell: M11

Comment: Rick Heede:

Bahrain: "In 1990 Banagas estimated total natural gas reserves at 209 trillion cubic meters; daily production averaged about 20 million cubic meters."
countrystudies.us/persian-gulf-states/37.htm

Cell: F12

Comment: Rick Heede:

Gas production estimated from low-resolution chart (reproduced above) from Bapco's 2004 Annual Report.

Cell: J12

Comment: Rick Heede (Jan10):

Oil & Gas Journal OGI100 estimated production of crude oil and natural gas for Bahrain National Oil Company, various years.

Cell: E35

Comment: Rick Heede:

U.S. Bureau of Mines Minerals Yearbook 1970, in million bbl per year.

Cell: E38

Comment: Rick Heede:

U.S. Bureau of Mines Minerals Yearbook 1972, in million bbl per year.

Cell: I39

Comment: Rick Heede:

U.S. Bureau of Mines Minerals Yearbook 1974, page 887, reports both gross and marketed production for 1972-1973.

Cell: E40

Comment: Rick Heede:

U.S. Bureau of Mines Minerals Yearbook 1974, in million bbl per year.

Cell: I41

Comment: Rick Heede:

U.S. Bureau of Mines Minerals Yearbook 1976, page 887, reports both gross and marketed production for 1974-1976.

Cell: B42

Comment: Rick Heede:

In 1975 more than 60% BAPCO's shares was acquired by the Government of Bahrain.

Cell: E42

Comment: Rick Heede:

U.S. Bureau of Mines Minerals Yearbook 1976, in million bbl per year.

Cell: G42

Comment: Rick Heede:

1975: Govt of Bahrain acquires 60 percent interest in BANOCO (CalTex 40%).

Cell: K42

Comment: Rick Heede:

1975: Govt of Bahrain acquires 60 percent interest in BANOCO (CalTex 40%).

Cell: B43

Comment: Rick Heede:

1976: Incorporation of the Bahrain National Oil Company (BANOCO). Source: bapco.com

Cell: D44

Comment: Rick Heede:

Bahrain: "Oil production peaked in 1977 at 77,000 barrels per day and steadily declined thereafter."
countrystudies.us/persian-gulf-states/37.htm

Cell: L45

Comment: Rick Heede:

Banagas annual emissions of CO₂-equivalent if the reported 3 million SCM per of natural gas vented to the atmosphere is estimated by CMS to total 56.3 million tonnes of CO₂e per year (MtCO₂e/yr). If the natural gas (assumed to be all methane, since CMS does not have data on entrained CO₂ and other entrained gases) is assumed to be flared rather than vented, then emissions would total 2.25 MtCO₂/yr.

Cell: J46

Comment: Rick Heede:

CMS assumes that the natural gas simply vented prior to 1979 and captured and processed thereafter, coupled with production from the Khuff field, gradually grows between 1979 and 1987 to the production estimated by Oil & Gas Journal for 1987. CMS interpolates between these dates.
Bahrain: "Substantial deposits of natural gas are associated with Bahrain's oil fields. Before 1979, when the government established the Bahrain National Gas Company (Banagas), an estimated 3 million
OilGasAdnoc_Encana.xls

Bahrain

cubic meters per day of this gas were being vented to the atmosphere. Banagas opened a gas liquefaction plant that collected this gas and processed it into propane, butane, and naphtha. There are also large deposits of natural gas in the Khuff field, which is separate from the oil fields. Banagas has drilled more than fifteen wells to tap this gas, which is used for fuel to power the oil refinery, electric generators, and the water desalination plant. Some of the gas is reinjected into the oil fields to maintain reservoir pressure and stimulate production. In 1990 Banagas estimated total natural gas reserves at 209 trillion cubic meters; daily production averaged about 20 million cubic meters. countrystudies.us/persian-gulf-states/37.htm

Cell: B47

Comment: Rick Heede:

1980: Govt of Bahrain acquires 100 percent interest in BANOCO.
Source: bapco.com

Cell: G47

Comment: Rick Heede:

1980: Govt of Bahrain acquires 100 percent interest in BANOCO.

Cell: K47

Comment: Rick Heede:

1980: Govt of Bahrain acquires 100 percent interest in BANOCO.

Cell: D52

Comment: Rick Heede:

Bahrain: "At the end of 1985 ... Bapco could not increase production from its declining oil fields beyond 42,000 bpd"
countrystudies.us/persian-gulf-states/37.htm

Cell: F54

Comment: Rick Heede:

Oil & Gas Journal OGI100, various years; data for Bahrain National Oil Co or Bahrain Petroleum Co.

Cell: J54

Comment: Rick Heede:

Oil & Gas Journal OGI100, various years; data for Bahrain National Oil Co or Bahrain Petroleum Co.

Cell: M54

Comment: Rick Heede:

Oil & Gas Journal OGI100, various years; data for Bahrain National Oil Co or Bahrain Petroleum Co.

Cell: H57

Comment: Rick Heede:

EIA International energy Statistics, from page 2 below, Bahrain gross production of natural gas.

Cell: F71

Comment: Rick Heede:

BAPCO Annual Rpt 2004, 12.36 million bbl of crude production, plus 1.31 million bbl on NGLs.

Cell: J72

Comment: Rick Heede:

BAPCO 2005 Annual Rpt shows 470.4 Bcf (and "9.8 percent higher than 2004"). CMS therefore revises reported 2004 production from 409.7 Bcf to 428.4 Bcf. This is revised back to 409.7 Bcf (based on the chart in their 2005 Annual Rpt, page 17): their percentage increase calculation is in error.

Cell: F75

Comment: Rick Heede:

Oil & Gas Journal estimates 62.1 million bbl produced in 2008 for Bahrain National Oil Company. CMS cites company data for Bahrain Petroleum Company. Bahrain National Oil Company is the holding company for Bahrain National Oil Company.

Cell: E127

Comment: Rick Heede:

Banagas data for 1990.

Cell: I130

Comment: Rick Heede:

Bahrain: "Substantial deposits of natural gas are associated with Bahrain's oil fields. Before 1979, when the government established the Bahrain National Gas Company (Banagas), an estimated 3 million cubic meters per day of this gas were being vented to the atmosphere. Banagas opened a gas liquefaction plant that collected this gas and processed it into propane, butane, and naphtha. There are also large deposits of natural gas in the Khuff field, which is separate from the oil fields. Banagas has drilled more than fifteen wells to tap this gas, which is used for fuel to power the oil refinery, electric generators, and the water desalination plant. Some of the gas is reinjected into the oil fields to maintain reservoir pressure and stimulate production. In 1990 Banagas estimated total natural gas reserves at 209 trillion cubic meters; daily production averaged about 20 million cubic meters. countrystudies.us/persian-gulf-states/37.htm

Cell: E135

Comment: Rick Heede:

"First was Bahrain's share of profits from the offshore Abu Safah oil field in the Persian Gulf between Bahrain and Saudi Arabia. When the two countries demarcated their marine boundaries in 1958, Bahrain ceded its claims to an area of the gulf north of the island in return for a Saudi agreement to share the profits from any oil that might be discovered there. Subsequently, oil in commercial quantities was found in the seabed, and from 1968 to 1986, revenues from the Abu Safah field contributed significantly to Bahrain's overall oil income. Since production from the Abu Safah field ceased in early 1987, Saudi Arabia has provided Bahrain with 75,000 bpd of crude oil as compensation for this loss."
countrystudies.us/persian-gulf-states/37.htm