

Oil and natural gas extraction data

Richard Heede
 Climate Mitigation Services
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OAQ Gazprom, Russia

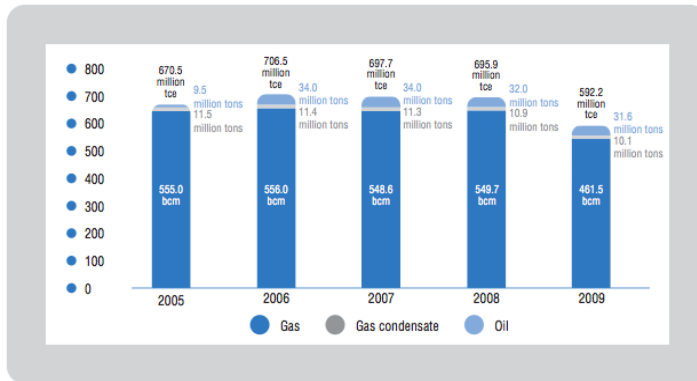
www.gazprom.com St. Petersburg

yellow column indicates original reported units **50.01% State-owned**

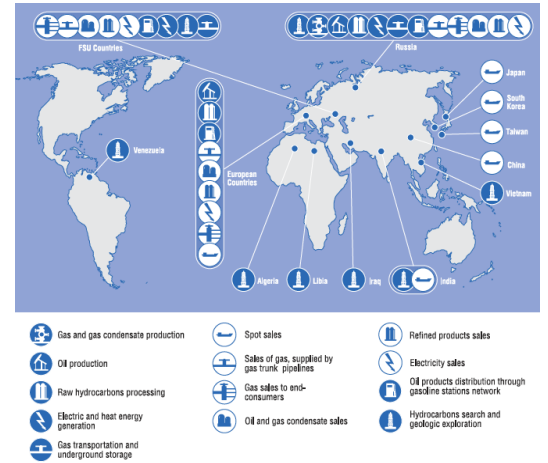
Production / Extraction data

Year	Crude Oil & NGL					Natural Gas				
	million tonnes	million tonnes	Million bbl /yr	Million bbl /yr	Sum Million bbl /yr	Bcm/yr	Million m ³ /yr	Million SCM/d	Billion cf/yr	Billion cf/yr

- 17 1950
- 18 1951
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- 71 2004
- 72 2005
- 73 2006
- 74 2007
- 75 2008
- 76 2009
- 77 2010



OAQ Gazprom (2010) "Gazprom in Figures 2005-2009," gazprom.com



Gazprom in Figures 2005-2009, page 5.

Gazprom acquired Sibneft in 2005.

35.31466 cf/SCM

For further details, see:

Victor, Nadejda, & Inna Sayfer (2012) "Gazprom: the struggle for power," in Victor et al, eds, Oil and Governance, pp. 655-700.

Note on Gazprom pipeline system

Year	Gazprom		Gazprom established as a state concern in 1989		Gazprom		Gazprom			
	million bbl /yr	million bbl /yr	million bbl /yr	million bbl /yr	Bcf/yr	Bcf/yr	Bcf/yr	Bcf/yr		
1989	85.7		85.7		22,764		22,764			
1990	87.8		87.8		23,307		23,307			
1991	87.3		87.3		23,178		23,178			
1992	83.8		83.8		22,240		22,240			
1993	80.8		80.8		21,452		21,452			
1994	79.4		79.4		21,094		21,094			
1995	77.8	50.0	127.8		20,657		20,657			
1996	73.6	75.0	148.6		19,535		19,535			
1997	70.0	100.0	170.0		18,587		18,587			
1998	72.4	125.0	197.4		19,229	52.0	19,281			
1999	9.9	16.32	72.6	117.7	19,268	47.5	19,315			
2000	10.0	17.20	73.3	124.0	19,477	50.5	19,527			
2001	10.2	20.67	74.8	149.0	18,081	57.9	18,139			
2002	10.6	26.34	77.7	195.9	18,431	49.5	18,480			
2003	11.0	31.45	80.6	233.8	19,077	70.7	19,148			
2004	12.0	34.04	88.0	253.1	19,511	70.1	19,581			
2005	21.0	Acquire d 2005	153.9	147.7	19,600	40.9	19,641			
2006	45.4		332.8		19,633		19,633			
2007	45.3		332.0		19,372		19,372			
2008	42.9		314.5		19,414		19,414			
2009	41.7		305.6		16,298		16,298			
2010	43.7		320.0		17,961		17,961			
Total	na	na	3,024	1,571	na	na	-	437,167	439	437,606

A B C D E F G H I J K L M N O P

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Alternate production estimate for 2008			
Oil	Oil	Natural gas	Natural gas
Thousand bbl /d	Million bbl /yr	Million cf/d	Bcf.yr
1,124	410	51,818	18,914

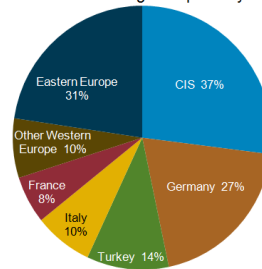
Source: Hults, & Thurber, 2012, Introduction, Table 1.1, page 24, in Victor et al, eds, 2012, Oil and Governance. Table 1.1 is based on information from Wood Mackenzie's Pathfinder Database; www.woodmacresearch.com

1 cubic meter = 35.314667 cubic feet

Additional gas data		
Bcf/yr	Bcf/yr	Bcf/yr
1936	49.44	



Share of Russia's natural gas exports by destination, 2010



Source: Eastern Block Energy, U.S. Energy Information Administration
EIA Country Studies, Russia, viewed April 2013.

Gazprom Proven reserves	Bcm	Bcf
	35,578	1,256,439

Gazprom in Figures, 2009, page 12.

EIA data	FSU dry gas
Eurasia	Bcf, 1992
Armenia	-
Azerbaijan	275
Belarus	10
Estonia	-
Former U.S.S.R.	--
Georgia	1
Kazakhstan	286
Kyrgyzstan	4
Latvia	-
Lithuania	-
Moldova	-
Russia	22,616
Tajikistan	4
Turkmenistan	2,020
Ukraine	738
Uzbekistan	1,511
Total "FSU"	27,465
Percent Russia	82.34%

Bcm	Bcf
9.00	318

Russia of FSU	US BuMines data	
Bcf/yr	1960-1971	
1,444	1,754	
1,872	2,273	
2,311	2,806	
2,661	3,231	
3,205	3,892	
3,763	4,570	
4,208	5,110	
4,612	5,601	
4,973	6,039	
5,317	6,457	USSR gross prod'n for comparison only
5,816	7,063	6,860
6,133	7,448	7,520
		7,900
6,858	8,328	interpolated
7,583	9,208	interpolated
8,307	10,089	interpolated
9,032	10,969	interpolated
9,757	11,849	interpolated
10,482	12,729	interpolated
11,207	13,610	interpolated
11,931	14,490	interpolated
12,656	15,370	EIA USSR gas data
13,529	16,430	1980-1991
14,558	17,680	Billion cf/yr
15,585	18,927	
17,082	20,744	
18,698	22,707	
19,923	24,195	
20,881	25,358	
22,391	27,192	
23,148	28,111	% Russia of USSR
23,700	28,782	1991/1992:
23,569	28,623	82.34%

US Energy Information Administration, International Energy Statistics
www.eia.gov/emeu/internationalenergy.html
Updated April 2013

USSR / Russia	USSR / Russia	USSR / Russia	USSR / Russia	USSR / Russia	USSR / Russia
Prod Marketed Gas	Dry natural gas	Vented & Flared	Flaring of gross	Reinjected	Gross Prod'n
Bcf per year	Bcf per year	Bcf per year	%	Bcf per year	Bcf per year
NA	15,370	-	-	-	NA
NA	16,430	-	-	-	NA
NA	17,680	-	-	-	NA
NA	18,927	380	-	-	NA
NA	20,744	375	-	-	NA
NA	22,707	400	-	-	NA
NA	24,195	350	-	-	NA
NA	25,358	321	-	-	NA
NA	27,192	706	-	-	NA
NA	28,111	689	-	-	NA
29,142	28,782	113	0.38%	-	29,823
28,980	28,623	424	1.44%	-	29,404
22,616	22,616	390	1.70%	-	23,006
21,814	21,814	-	0.00%	-	21,814
21,450	21,450	-	0.00%	-	21,450
21,005	21,005	-	0.00%	-	21,005
20,235	19,865	-	0.00%	-	20,235
19,257	18,901	-	0.00%	-	19,257
19,914	19,554	-	0.00%	-	19,914
19,953	19,593	-	0.00%	-	19,953
19,692	19,335	-	0.00%	-	19,692
19,579	19,222	-	0.00%	-	19,579
20,126	19,685	177	0.87%	-	20,303
20,963	20,507	194	0.92%	-	21,157
21,450	20,991	494	2.25%	-	21,945
21,698	21,224	528	2.38%	NA	22,225
22,220	21,736	551	2.42%	NA	22,771
22,150	21,595	597	2.62%	NA	22,746
22,051	21,515	706	3.05%	NA	23,174
19,901	19,303	688	3.34%	-	20,589
22,372	21,536	618	2.69%	-	22,990
23,686	23,686	NA	-	-	23,686

Russia flaring	Bcm	Bcf
World Bank		
50.0	1,766	
52.3	1,847	
42.0	1,483	
46.6	1,646	
35.2	1,243	

OGJ production estimates	
Gazprom	Gazprom
liquids million bbl	gas Bcf
230.7	16,297
245.3	17,961

Total	277,091	813,080
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1960-1988 1960-2010

Cell: H9

Comment: Rick Heede:

Natural gas lanterns were first lit in Russia on the Aptekarsky Island of Saint Petersburg back in 1819. The history of "big gas" in the Soviet Union began in 1946 upon commissioning of the Saratov – Moscow gas trunkline. Gazprom State Gas Concern was established in 1989 on the basis of the USSR Gas Industry Ministry. In 1993 the Concern laid the foundation for setting up Gazprom Russian Joint Stock Company, which was renamed in 1998 as Gazprom Open Joint Stock Company. www.gazprom.com/about/
The Soviet Union created a natural gas ministry in 1965 to help develop the USSR's natural gas industry.
Also see the history section of: Victor, Nadejda, & Inna Sayfer (2012) "Gazprom: the struggle for power," in Victor et al, eds, Oil and Governance, pp. 655-700.

Cell: N9

Comment: Rick Heede:

The Russian Govt owns a controlling share, 50.01 percent. Wikipedia, Apr12.

Victor & Sayfer state 49 percent publicly owned. Russia's privatization, via a 1992 presidential decree, stipulated voucher auctions of formerly state-owned enterprises with ownership limited to workers and Russian citizens. Gazprom was established as a joint stock company. Along with similar oil companies such as Lukoil, Rosneft, and Yukos, a required 38 to 45 percent of shares would remain in government hands for the first three years, ending in 1994 (note: the government ownership excludes shares owned by the company and its managers; in 2000, Gazprom managers' official stake was ~35 percent, "leaving about 20 percent in other, hidden hands." Victor and Sayfer, page 693, fn 4, citing Black et al, 2000, "Russian Privatization and Corporate Governance: What Went Wrong?" Stanford Law Review, vol. 52:1731-1808).

In Gazprom's case, 40 percent of its shares were in government hands, and 9 percent set aside for foreign ownership. In the second stage of privatization beginning in 1995 Gazprom was spared further privatization because gas prices were too low to make Gazprom a viable commercial enterprise and Prime Minister Chernomyrdin did not want to further weaken his control by introducing new competitive pressures. In 1998, President Yeltsin approved the sale of a further 5 percent of the government's shares in Gazprom. Foreign participation was increased to 14 percent, but only a 2.5 percent stake was sold to Ruhrgas for \$660 million. President Putin sought to increase control over the oil and gas sectors, and, after taking control over Gazprom, signed amendments to a federal bill that allowed the state to have a controlling interest in the gas monopoly, by holding 50 percent plus one share. "In 2005, as a result of state-owned Rosneftegaz's purchase of a 10.74 percent stake in Gazprom, the government's stake in Gazprom increased to 50.1 percent."

Victor, Nadejda, & Inna Sayfer (2012) "Gazprom: the struggle for power," in Victor et al, eds, Oil and Governance, at pages 656-665, and 674.

World Bank, 2008b, page 221: "Gazprom is the world's largest gas company basically focused on geological exploration, production, transmission, storage, processing and marketing of gas and other hydrocarbons. The state owns a 50.002 percent controlling stake in Gazprom." World Bank (2008b) A Citizen's Guide to National Oil Companies, Part B: Data Directory, World Bank, Washington, & Center for Energy Economics, Bureau of Economic Geology Jackson School of Geosciences University of Texas, Austin, 764 pp.

Cell: H12

Comment: Rick Heede:

Total net worldwide crude oil plus natural gas liquids produced by each company or state-owned enterprise. Where data is available, we list gross production (before royalty production is netted out). More often, however, oil companies report production net of royalty production.
Crude production includes natural gas liquids (NGL) unless noted.

Cell: O12

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: J49

Comment: Rick Heede:

Gazprom Neft was created under the name Sibneft in 1995 by Presidential Decree #872, issued on 24Aug95. A government resolution was signed on 29Sep95, and the State Property Committee on 11Oct95 ordered that the state's shares in oil producing enterprise Noyabrskneftegas, the Omsk Refinery, exploration enterprise Noyabrskneftegasgeophysica and marketing company Omsknefteprodukt all be transferred to Sibneft.

Sibneft initially combined Russia's largest oil refining complex in Omsk (dba Omsky NPZ), an oil and gas production enterprise based in the city of Noyabrsk in the Yamal-Nenets autonomous district (Noyabrskneftegas), a geological exploration enterprise and an oil products distribution network.

In 1996-1997 Sibneft was privatized through a series of Loans-for-Shares' auctions, and it was acquired by Roman Abramovich and Boris Berezovsky for US\$100 million, bidding through several front companies that they set up for the purpose.

Sibneft twice attempted a merger with Yukos, to form Russia's largest oil company YukosSibneft. The first attempt in 1998 failed due to a dispute over management. The process was well under way the second time in 2003 when the federal government cracked down on Yukos, and Sibneft's shareholders called off the merger in November of that year.

In September 2005, Russia's largest corporate takeover occurred when Gazprom bought 73% of Sibneft's shares for US\$13.1 billion. Later, Sibneft was renamed Gazprom Neft.
en.wikipedia.org/wiki/Gazprom_Neft

Cell: J53

Comment: Rick Heede:

Gazprom owns the largest pipeline system in the world, which totaled 159,500 km at year-end 2008. The system includes 219 compressor stations with a capacity of 42 GW.
Victor, Nadejda, & Inna Sayfer (2012) "Gazprom: the struggle for power," in Victor et al, eds, Oil and Governance, pp. 655-700. At page 680.

Cell: F56

Comment: Rick Heede:

CMS assumes a constant proportion of NGL production to natural gas production for 1989 - 1998. No data available from Oil & Gas Journal, or Gazprom data.

Cell: L56

Comment: Rick Heede:

We estimate Gazprom's natural gas production for the years in which we do not have Gazprom annual reports (1989-1998) by (a) estimating Gazprom of Russian gas production total: 98.34 percent in 1999).

In addition, for 1989-1991 only, we also apply a factor of 82.3 percent in order to estimate Russia's portion of total FSU gas production (82.34 percent in 1991).

Cell: M56

Comment: Rick Heede:

Gazprom estimates for 1989-1998 are equal to EIA dry gas production data for Russia times the fraction of Russian production that is known to have been Gazprom in 1999, namely, 92.5 percent of Russia total.

Cell: L61

Comment: Rick Heede:

We estimate Gazprom's natural gas production for the years in which we do not have Gazprom annual reports (1989-1998) by (a) estimating Gazprom of Russian gas production total: 98.34 percent in 1999).

Cell: G62

Comment: Rick Heede:

We assume, for lack of production data from either Sibneft or Oil & Gas Journal, that Sibneft produced crude oil 1995 to 1997; we conservatively estimate that 1995 production equaled 40 percent of the known production in 1998, 1996 = 60 % of 1998, and 1997 = 80 percent of 1998. Sibneft's production likely exceeds these estimates.

Gazprom

Cell: E63

Comment: Rick Heede:

Sibneft varies its bbl per tonne conversion factor: "Miller & Lents used a 7.21 conversion factor to convert tons into barrels from 1996 through 2001. From 2002, the conversion factor used in audits is 7.436." Sibneft Modeling Databook, p. 9.

Cell: D66

Comment: Rick Heede:

Gazprom (2004) Annual Report for 2003, pp. 8 & 42-43. www.gazprom.com
Oil and condensate production averages ~92+ percent condensate, e.g., 10.8 of 11.0 million tonnes in 2003.

Cell: J66

Comment: Rick Heede:

Gazprom (2004) Annual Report for 2003. www.gazprom.com

Cell: M66

Comment: Rick Heede:

1999 data from Gazprom Annual report -- converted from 1.495 billion SCM/d to 19,268 Bcf/yr.

Cell: M67

Comment: Rick Heede:

Data from OGJ100 for Gazprom 2000-2003.

Cell: F69

Comment: Rick Heede:

Inconsistent reporting in OGJ (2004) -- 5.2 million bbl -- and OGJ (2003) -- 73 million bbl -- both for data year 2002. This is probably erroneous, considering that the higher figure agrees (though for 2001, not 2002) with both EI Top 100 and Gazprom's own data. Hence we use Gazprom data (converted from million tonnes of oil per year) into million bbl/yr at 7.3 bbl per tonne.

Cell: J70

Comment: Rick Heede:

Victor & Sayfer quote Gazprom Financial reports for natural gas sales 2003-2008 (494 Bcm, 525 Bcm, 540 Bcm, 579 Bcm, 572 Bcm, and 568 Bcm, respectively; note that we quote production data rather than sales, and sales data may include amounts purchased from producers. See Table 15.3, page 678.
Victor, Nadejda, & Inna Sayfer (2012) "Gazprom: the struggle for power," in Victor et al, eds, Oil and Governance, pp. 655-700.

Cell: F71

Comment: Rick Heede:

OAQ GazProm (2009) GazProm in Figures 2004-2008, page 28. Data in million tonnes of liquids production: chiefly condensate in 2004, ~equal in 2005, ~75 percent crude oil 2006-2008, e.g., 32 Mt oil & 10.9 Mt NGL in 2008.
Note: while Oil & Gas Journal gas production estimates agree well with GazProm data, OGJ100 are low for oil production (OGJ100 2006-2008 ~248 million bbl per year).. CMS uses GazProm data.

Cell: J71

Comment: Rick Heede (Dec09):

OAQ GazProm (2009) GazProm in Figures 2004-2008, page 28. Data in billion cubic meters, gas production.

Cell: G72

Comment: Rick Heede:

Gazprom acquired Sibneft in August 2005, and 7 of 12 months are added for 2005.

Cell: M72

Comment: Rick Heede (Dec09):

Oil & Gas Journal OGJ100, various years, Bcf per year. Similar data data 2005-2008: 19,599 Bcf, 19,635 Bcf, 19,373 Bcf, and 19,412 Bcf.
CMS uses the GazProm data from column "J."

Cell: N72

Comment: Rick Heede:

Gazprom acquired Sibneft in August 2005, and 7 of 12 months are added for 2005.

Cell: D76

Comment: Rick Heede:

Gazprom data 2005-2009

Cell: B77

Comment: Rick Heede:

While Russian energy strategies project rising natural gas production -- from about 610 Bcm in 2010 to 760 Bcm in 2030 (EIA; the Russian Energy Strategy projects production as high as 900 Bcm in 2030). About ninety percent of Gazprom's production is the Urals and Western Siberia, many of its discovered resources are not currently being produced. Additional exploration, development, and pipelines to offshore Arctic areas from Shtokman north of Murmansk and offshore Yamal Peninsula are ongoing, although cost, complexity, and markets have slowed development.
In addition, Gazprom's domestic prices are controlled, end use is frequently very inefficient as a result, 60 percent of total domestic gas consumption is used for electricity generation (to make things worse: gas-fired power plants are ~33 percent efficient), and "more than ninety percent of residential and industrial gas consumers lack meters." Victor, Nadejda, & Inna Sayfer (2012) "Gazprom: the struggle for power," in Victor et al, eds, Oil and Governance, pp. 655-700. At page 672, and 695 (fn 16).
Gazprom owns 51 percent of Shtokman Development Company; Total SA has 25 percent, and Statoil owns 24 percent.

Cell: H77

Comment: Rick Heede:

CMS uses Gazprom production of oil plus condensate (column D) in million tonnes per year. Oil & Gas Journal reports liquids production of 245 million barrels; Gazprom 320 million bbl.

Cell: J77

Comment: Rick Heede:

Gazprom website gas production, as well as oil and condensate (column D).

Cell: G87

Comment: Rick Heede:

Gazprom "working interest liquids production in 2008" at 1,124 thousand bbl per day.
Victor, Hults, & Thurber, 2012, Introduction, Table 1.1, page 24, in Victor et al, eds, 2012, Oil and Governance. Table 1.1 is based on information from Wood Mackenzie's Pathfinder Database;
OilGasENL_NorskHydro.xls

www.woodmacresearch.com

Cell: L87

Comment: Rick Heede:

Gazprom "working interest natural gas production in 2008" at 51,818 thousand cf per day. Victor, Hults, & Thurber, 2012, Introduction, Table 1.1, page 24, in Victor et al, eds, 2012, Oil and Governance. Table 1.1 is based on information from Wood Mackenzie's Pathfinder Database; www.woodmacresearch.com

Cell: N95

Comment: Rick Heede:

"A + B + C1" Gaprom Group's hydrocarbon reserves in Russia., datum for 2009. Gazprom in Figures 2005-2009, page 12.

Cell: E97

Comment: Rick Heede:

US Bureau of Mines (~1955) Minerals Yearbook 1952, Colby, Barton, & Oppegard, "Natural Gas, page 300.

Cell: N101

Comment: Rick Heede:

EIA International Energy Statistics, dry gas production in FSU states in 1992.

Cell: D105

Comment: Rick Heede:

USSR (chiefly western Russian and Ukraine) produced 9 Bcm in 1955. Victor, Nadejda, & Inna Sayfer (2012) "Gazprom: the struggle for power," in Victor et al, eds, Oil and Governance, pp. 655-700. At page 658.

Cell: E110

Comment: Rick Heede:

We estimate Russia's gas production of total USSR (FSU) based on the Russia proportion of FSU gas production in 1992 (EIA data); see calculations at right.

Cell: F110

Comment: Rick Heede:

US Bureau of Mines, Minerals Yearbook 1964, p. 348, shows USSR's "marketed production of natural gas" for 1960-1964.

Cell: F119

Comment: Rick Heede:

US Bureau of Mines, Minerals Yearbook 1971, Table 19, p. 797, shows both marketed and gross production of natural gas for 1969-1971. Russian gross production totaled 6.860 Tcf (x1.0624 of marketed production) in 1969, 7.520 Tcf (x1.0647) in 1970, and 7.9 Tcf (x1.0607) in 1971. Gross gas production includes gas that is vented or flared or re-injected; no data published to quantify vented or flared quantities in any country.

Cell: K127

Comment: Rick Heede:

USSR data for 1980-1991, and Russian Federation 1992-2011.

For the purposes of attributing a proportion of USSR, or Former Soviet Union (FSU), we calculate that 82.344 percent of FSU's 1992 dry gas production (22.62 Tcf of 27.46 Tcf) was produced in Russia. We apply this factor above in allocating a percent of Russian gas production to Gazprom for

Cell: F144

Comment: Rick Heede:

World Dry Natural Gas Production, Bcf, Russia 1994-2003p, EIA (2005) Annual Energy Review, Table 11.11. Dry gas production is a proportion of gross production (81.5 percent of world gross prod'n in 2000, EIA International Energy Annual, Table 4.1: 88,093 Tcf dry vs 108,088 Tcf gross, or gross is 1.227x dry).

In any case, we use EIA dry gas production for Russian 1994-2003 as a proxy data set for Gazprom prior to known Gazprom starting in 1999: in 1999, known Gazprom equals 92.5 percent of EIA data for 1999, and we apply this fraction to EIA data 1994-1998.

1990 to 2011 data updated April 2013 with EIA International Energy Statistics, at right.

Cell: L156

Comment: Rick Heede:

The World Bank's estimate of Russian flared gas is 1,766 Bcf (EIA's is 551 Bcf). World Bank does not estimate vented natural gas. The reason for this discrepancy is unclear; CMS has not checked the background and methodology for EIA's flaring estimates.

Cell: H159

Comment: Rick Heede:

OGJ 3 Oct 2011 pg 47

Cell: O164

Comment: Rick Heede:

Blank, for pagination.

Cell: P164

Comment: Rick Heede:

Intentionally left blank.

Gazprom