

CARNEGIE ENDOWMENT

FOR INTERNATIONAL PEACE

The Shanghai Cooperation Organization and the International Politics of Competition and Cooperation around the Caspian Energy Resources

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Energy Facts and Figures

- By 2030, the Caspian area is projected to produce 5.7 million barrels of oil per day
- The EU will import up to 75 percent of its natural gas requirements and two-thirds of its total energy requirements by 2020
- Last year, China's increased oil demands accounted for 38 percent of global growth in demand

Eurasia's Oil Pipelines and Facilities



Existing and Planned Gas Routes in Eurasia



Selected Oil Pipelines to China



DI Cartography Center/MPG 769943AI (G00132) 6-05

Source: EIA, "Oil Pipelines to China."

Selected Natural Gas Pipelines to China



Source: EIA, "Gas Pipelines to China."

Caspian Oil Pipelines



Source: EIA, "Caspian Sea Country Brief," January 2007;
CIA.

Caspian Gas Pipelines



Source: EIA, "Caspian Sea Country Brief," January 2007;
CIA.

Caspian Resources



SOURCE:
European Environment Agency
“Europe’s environment – the fourth
assessment,” 2007.

<http://www.eea.europa.eu>
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Selected Energy Projects of the Caspian Sea Region



Table 1		Caspian Sea Region Leading Upstream Foreign Investment Projects by Country		
Country	Project (Major Investor)	Proven Reserves	2006 Production	Projection
Azerbaijan	ACG Mega-Structure (BP et al)	5.4 billion barrels	450,000 bbl/d	2007: 550,000 2009-10: 1 million bbl/d
	Shah Deniz (BP et al.)	2.5 billion barrels 14-22.1 Trillion Cubic Feet	not producing	2007: 296 Bcf
Kazakhstan	Tengiz (ChevronTexaco et al.)	6-9 billion barrels	270,000 bbl/d	2007: 300,000 bbl/d 2010: 650,000 bbl/d
	Karachaganak (BG, Agip, et al.)	2.4 billion barrels	200,000 bbl/d, 547 Bcf	2010: 500,000 bbl/d, 800 Bcf
	Kashagan (ENI-Agip, BG, et al.)	7-9 billion barrels	not producing	2010: 75,000 bbl/d, 2015: 1.2 million bbl/d
Turkmenistan	Cheleken (Dragon Oil)	0.6 billion barrels	25,000 bbl/d	2010: 40,000 bbl/d
	Hebit Dag (Burren Energy)	0.1 billion barrels	19,000 bbl/d (2005)	2005: 31,000 bbl/d
Uzbekistan	Central Ustyurt and Southwest Gissar (PSA dissolved, being renegotiated)	Reserves: 90 million Barrels, 18.7 Tcf		2007: 2,600 bbl/d 71 Bcf
	Fergana Basin redevelopment (Australia, China PSAs)	1.2 billion barrels, 5.5 Tcf NG	--	--

Source: EIA, "Caspian Sea Country
Brief," January 2007; CIA.

Proposed Bosphorus Bypass Pipelines



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World Total Liquids Production by Region and Country, 1990-2030

(Million Barrels Oil Equivalent per Day)

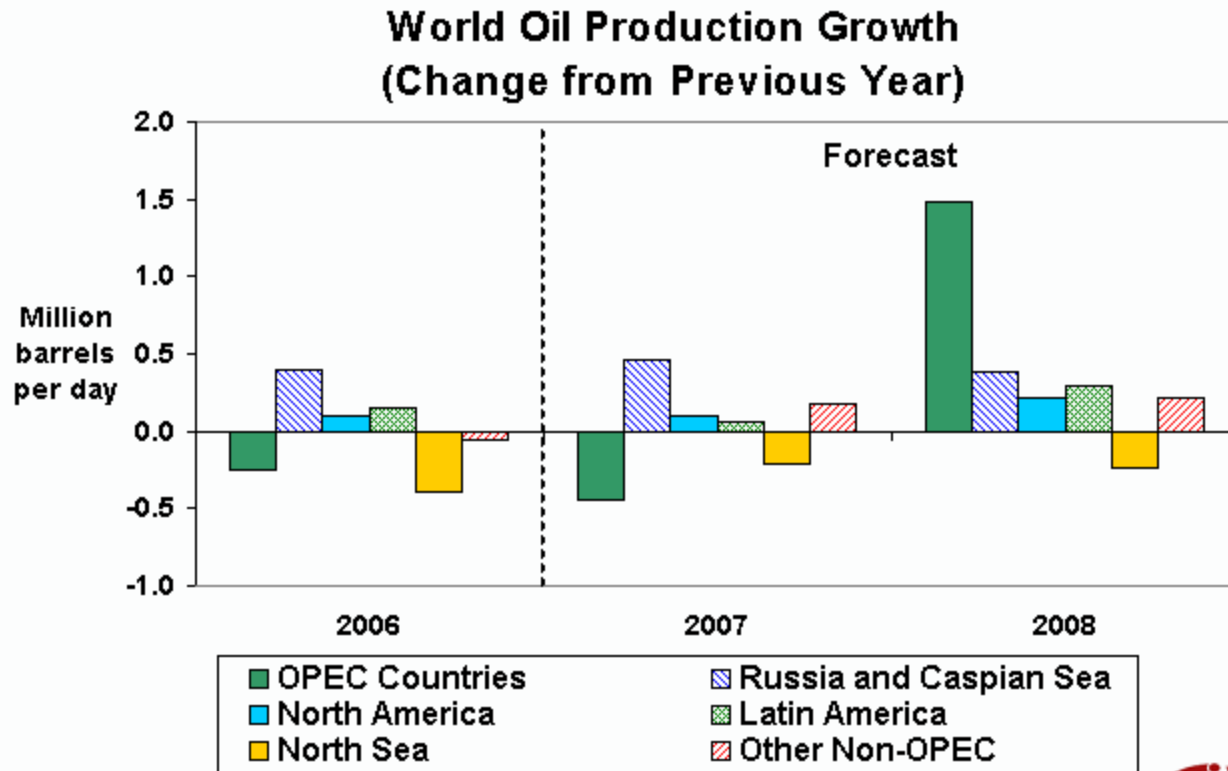
Liquids Production Projections

Energy Information Administration / International Energy Outlook 2007

	History (Estimates)					Projections			Average Annual Percent Change
	1990	2004	2005	2010	2015	2020	2025	2030	2004-2030
Non-OECD Europe and Eurasia.	11.6	11.5	11.9	13.7	14.9	15.8	16.7	17.5	1.6
Russia	0.0	9.3	9.5	10.0	10.3	10.7	11.2	11.5	0.8
Caspian Area	0.0	1.9	2.1	3.4	4.3	4.8	5.2	5.7	4.3
Other	11.6	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-0.2
Total World	66.3	82.9	84.3	90.7	97.4	103.8	110.4	117.7	1.4
OPEC Share of World Production.	38%	41%	42%	42%	43%	45%	46%	48%	
Persian Gulf Share of World Production: 24%		28%	28%	26%	27%	29%	31%	33%	

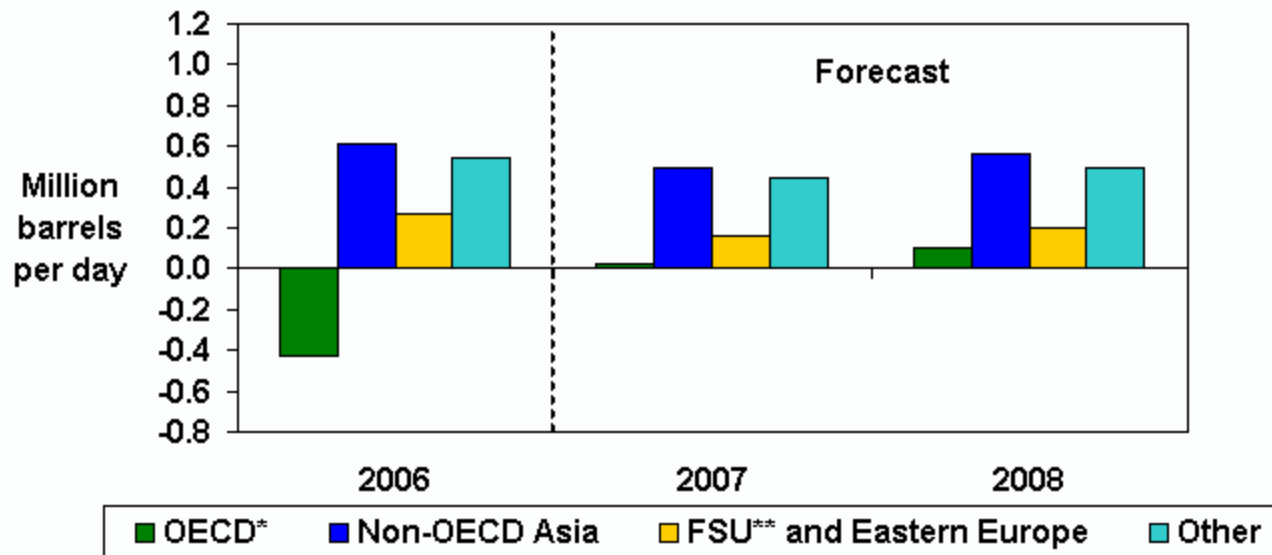
OPEC = Organization of the Petroleum Exporting Countries (OPEC-12).

Sources: ENERGY INFORMATION ADMINISTRATION. **History:** Energy Information Administration (EIA), Office of Energy Markets and End Use. **Projections:** EIA, System for the Analysis of Global Energy Markets, run 2007March21a (2007).a



Short-Term Energy Outlook, October 2007

World Oil Consumption Growth (Change from Previous Year)



* Countries belonging to Organization for Economic Cooperation and Development

** Former Soviet Union

Short-Term Energy Outlook, October 2007

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World Natural Gas Reserves by Country as of January 1, 2007

	Trillion Cubic Feet	Percent of World
Total World	6,183	100.0
Top 20 Countries.	5,602	90.6
Russia	1,680	27.2
Iran	974	15.8
Qatar	911	14.7
Saudi Arabia	240	3.9
United Arab Emirates	214	3.5
United States.	204	3.3
Nigeria.	182	2.9
Algeria	162	2.6
Venezuela	152	2.5
Iraq	112	1.8
Turkmenistan	100	1.6
Kazakhstan	100	1.6
Indonesia.	98	1.6
Norway	82	1.3
China.	80	1.3
Malaysia	75	1.2
Uzbekistan	65	1.1
Egypt	59	0.9
Canada	58	0.9
Kuwait	55	0.9
Rest of World.	581	9.4

Source: Energy Information Agency, "International Natural Gas Analysis to 2030," 2007.
See "Worldwide Look at Reserves and Production," Oil & Gas Journal, Vol. 104, No. 47
(December 18, 2006), pp. 22-23.

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World Natural Gas Consumption by Region, 1990-2030

(Trillion Cubic Feet); Energy Information Administration / International Energy Outlook 2006

	History			Projections				Average Annual	Percent Change
	1990	2002	2003	2010	2015	2020	2025	2030	2003-2030
OECD									
OECD North America	22.5	27.6	27.4	29.6	32.7	34.7	35.7	36.6	1.1
United States	19.2	23.0	22.3	23.4	25.9	26.9	27.0	26.9	0.7
Canada	2.4	3.1	3.2	4.2	4.2	4.7	5.0	5.3	1.9
Mexico	0.9	1.5	1.8	2.1	2.6	3.1	3.8	4.5	3.4
OECD Europe	11.6	17.2	17.8	21.1	23.9	25.8	28.2	30.8	2.0
OECD Asia	2.8	4.8	5.0	5.4	5.9	6.3	6.5	6.8	1.2
Japan	1.9	2.9	3.1	3.2	3.5	3.6	3.6	3.8	0.8
South Korea	0.1	0.8	0.9	1.0	1.2	1.3	1.3	1.3	1.7
Australia/New Zealand	0.8	1.1	1.1	1.1	1.3	1.5	1.6	1.7	1.7
Total OECD	36.8	49.6	50.2	56.1	62.6	66.8	70.5	74.2	1.5
Non-OECD									
Non-OECD Europe and Eurasia:	26.7	22.3	23.6	28.6	31.5	34.8	37.5	40.5	2.0
Russia	17.3	14.6	15.3	18.1	19.3	21.2	22.4	23.6	1.6
Other	9.5	7.8	8.3	10.5	12.2	13.6	15.1	16.9	2.7
Non-OECD Asia:	2.9	6.9	7.5	11.7	15.6	19.6	24.0	28.8	5.1
China	0.5	1.1	1.2	3.0	3.9	5.1	6.2	7.0	6.8
India	0.4	0.9	1.0	1.5	1.7	2.2	3.1	4.5	5.9
Other Non-OECD Asia	2.0	4.9	5.4	7.3	10.0	12.3	14.7	17.3	4.4
Middle East	3.6	7.6	7.9	11.0	13.0	15.0	17.1	19.6	3.4
Total Non-OECD	36.5	42.9	45.3	60.4	71.8	83.1	94.9	107.8	3.3
Total World	73.4	92.5	95.5	116.5	134.3	149.9	165.5	182.0	2.4

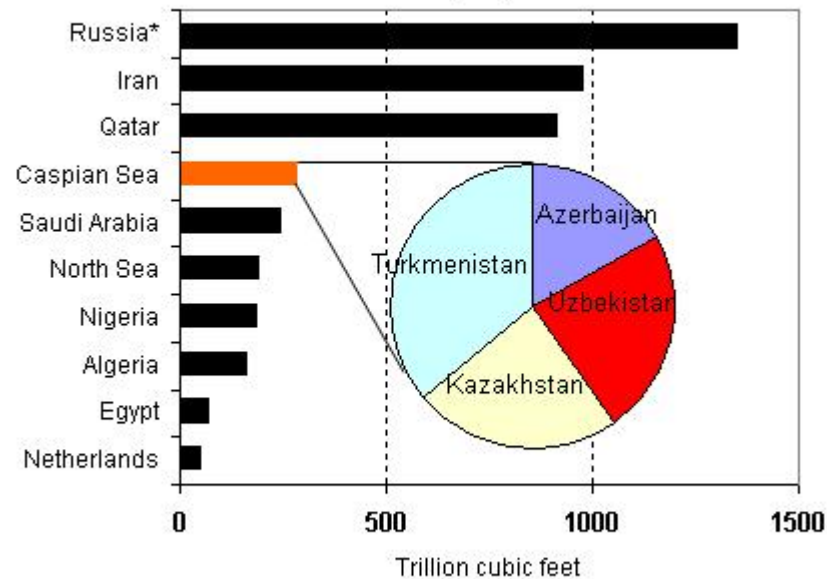
United States: includes the 50 States and the District of Columbia.

Note: Totals may not equal sum of components due to independent rounding.

Sources: ENERGY INFORMATION ADMINISTRATION. **History:** Energy Information Administration (EIA), International Energy Annual 2003 (May-July 2005), web site www.eia.doe.gov/iea/. **Projections:** EIA, Annual Energy Outlook 2006, DOE/EIA-0383(2006) (Washington, DC, February 2006), AEO2006; National Energy Modeling System, run AEO2006.D111905A, web site www.eia.doe.gov/oiaf/aeo/; and System for the Analysis of Global Energy Markets (2006).

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Fig. 2: Caspian Sea Natural Gas Reserves in Context (2006)



*Does not include Eastern Siberia, Sakhalin reserves

Source: Cedigaz (2006), World Gas Conference (Amsterdam, June 2006)

Source: EIA, "Caspian Sea Country Brief," January 2007.

OIL		The Caspian Sea Region contains proven oil reserves estimated to be between 17 and 44 billion barrels, comparable to Qatar on the low end and the United States on the high end.				
Reserves (Billion Barrels)	Proven Oil Reserves ¹					Total
	Country	Low	High	Possible ²	Low	High
	Azerbaijan	7	7	32	39	39
	Iran	0.1		15	15.1	
	Kazakhstan	9	40	92	101	132
	Russia ³	0.3		7	7.3	
	Turkmenistan	0.55	1.7	38	38.55	39.7
	Uzbekistan	0.3	0.59	2	2.3	2.59
	Total Caspian Sea Region	17.2	49.7	186	203.2	235.7
Production (Thousand barrels per day)	In 2005, regional oil production reached roughly 2.1 million barrels per day, comparable to South America's second largest oil producer, Brazil. By 2010, production is forecast to reach 3.1 million barrels in the IEO reference case.					
	Country	1992	2000	2005	Low 2010	High
	Azerbaijan	222	309	440	900	1290
	Iran				N/A	
	Kazakhstan	529	718	1,293	1900	2400
	Russia ³	0	0	0	200	
	Turkmenistan	110	157	196	165	450
	Uzbekistan	66	152	125	150	260
	Total Caspian Sea Region³	927	1,336	2,054	3,315	4,600
GAS		The Caspian Sea Region's proven natural gas reserves are estimated at 232 trillion cubic feet, comparable to Saudi Arabia.				
Reserves (tcf)	Country	Proven Reserves		Possible Reserves		Total Reserves
	Azerbaijan	30		35		65
	Iran	0		11		11
	Kazakhstan	65		88		153
	Russia ³	N/A		N/A		N/A
	Turkmenistan	71		159		230
	Uzbekistan	66.2		35		101
	Total Caspian Sea Region	232		328		560
Production (tcf/y)	Regional production reached approximately 4.9 tcf in 2004, comparable to the combined production of S. America, Central America, and Mexico. In 2010, the governments of the Caspian Sea region expect their countries to produce a total of 8.1Tcf, more than the 2004 production from the entire Middle East					
	Country	1992	2000	2005	2010	
	Azerbaijan	0.28	0.20	0.18	0.7	
	Iran					
	Kazakhstan	0.29	0.31	0.84	1.24	
	Russia ³					
	Turkmenistan	2.02	1.89	2.08	3.50	
	Uzbekistan	1.51	1.99	1.97	3.20	
	Total Caspian Sea Region	4.10	4.39	5.07	8.64	

1. Proven reserves are defined by the EIA as those volumes of oil and gas that geological and engineering data show with reasonable certainty to be economically recoverable under existing economic and operating conditions.

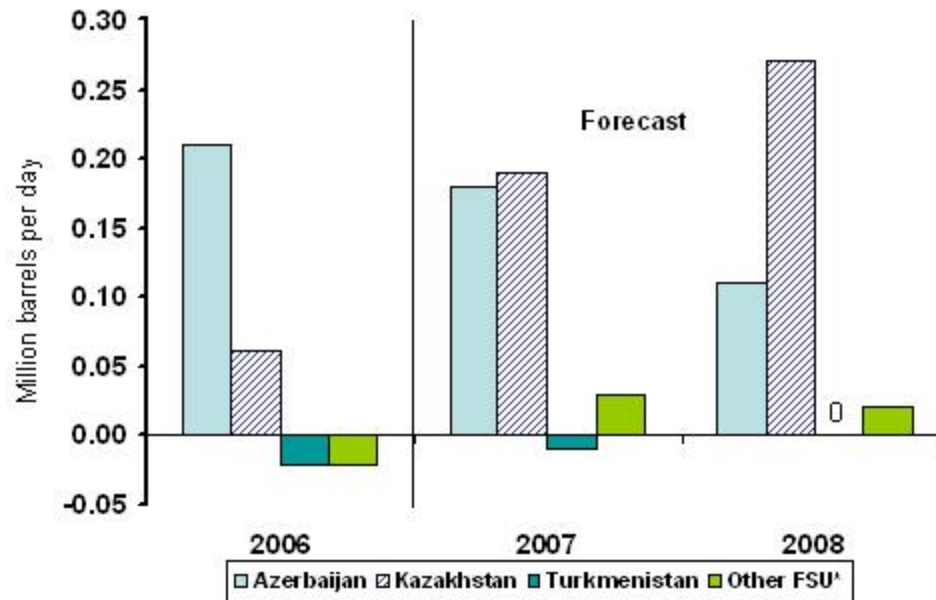
2. Possible reserves are less precisely quantified and are defined here to include other reserves found through extensions, divisions, and new discoveries

3 Other estimates (EIA/IEO 2006): 3.45 million bbl/d (Ref. Case, not including Russia), (World Oil, 10 March 2004): 3 million bbl/d

³Only Caspian area oil and gas production

**Source: Reserves, OGJ; Production, EIA; Forecasts, Interfax, EIA, IEA, CERA, SKRIN, APS Review

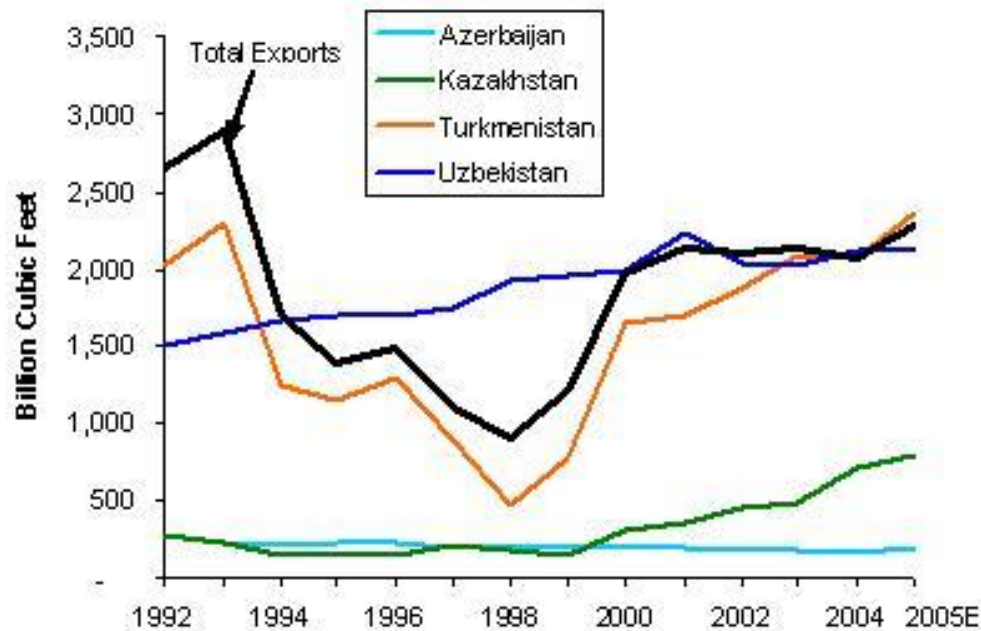
Figure 1: Caspian Sea Oil Production Growth
(Change from Previous Year)



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**Fig. 3: Caspian Region Natural Gas Production and Exports
(1992-2005)**



Source: EIA Int'l Energy Annual, Cedigaz 2005, CIS & E European Databook 2006