

COUNTRY ANALYSIS BRIEFS

Caucasus Region

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The Caucasus Region, comprising the newly independent states of Armenia, Azerbaijan, and Georgia, is important to world energy markets as a transit area for oil and natural gas exports from the Caspian Sea to Europe. Although the region has been beset by conflict, regional leaders hope that the development of several oil and natural gas export pipelines will bring peace and prosperity to the Caucasus.

Background

The Caucasus region sits between the Black Sea on the West and the Caspian Sea on the East, and comprises the newly independent states of Armenia, Azerbaijan, and Georgia. Since 2004, these three countries have been included in the EU's [Neighborhood Policy](#). This report considers only Armenia and Georgia; for a full report on Azerbaijan, see EIA's [Azerbaijan Country Analysis Brief](#).



As herein defined, the Caucasus Region consists of two highly dependent net energy importers surrounded by some of the world's energy giants (i.e. Russia, Iran, and to a smaller but growing extent, Azerbaijan). Energy priorities of the Caucasus countries, therefore, are two-fold: to diversify their energy supplies; and to cash in on transit revenues as their neighbors develop export facilities which traverse their territory. Three of the new export pipelines will pass through Georgia, while none are scheduled to cross Armenia due to its unstable bilateral relationship with Azerbaijan.

The Soviet Union bequeathed a number of problems to the Caucasus countries, including artificially drawn national borders and centrally-planned economies that were heavily dependent on Russia. Even before Azerbaijan and Armenia declared independence, fighting broke out in 1988 between the then-Soviet republics over the disputed area of [Nagorno-Karabakh](#), and separatist conflicts sparked in Georgia soon after independence. Some of the regional conflicts that flared in different parts of the Caucasus throughout the 1990's are now dormant, but few have been officially resolved.

Robert Kocharian has been President of Armenia since March 1998 and was re-elected to another term in May 2003. Georgian President Mikhail Saakashvili was elected in January 2004 after the resignation of Eduard Shevardnadze in November 2003. Saakashvili also won a victory in Ajaria, one of three separatist regions in the country, when the leader resigned in May 2004. The central government still holds little power over the other pro-Russian regions of Abkhazia and South Ossetia, and Georgia has amassed 10,000 troops on the border of South Ossetia.

Armenia and Georgia are relatively small producers and consumers of energy, however important oil and gas transit routes cross these countries.

Transit Energy

The Caucasus region is an important transit corridor for oil and gas exports from the Caspian Sea. With the commercialization of

As oil production from the Caspian Sea region increases, the Caucasus region has become an integral export route for oil and natural gas. Previously, the only way for Caspian energy to reach European consumers was via the Russian pipeline system. The United States has supported the principle of multiple export options for Caspian exporters, and three of the largest projects to these ends cross through Georgia (Baku-Tbilisi-Ceyhan, South Caucasus Pipeline, and Baku-Supsa, a.k.a the "Western Early Oil Route")—none of these pass through Armenia. Small oil resources exist in the region, and the new infrastructure will allow these smaller projects (i.e.

the BTC pipeline and the SCP pipeline during 2006, the region stands to reap the economic benefits of transit revenues and access to world energy markets.

refineries and smaller oil fields) to tie in to the pipeline and become economically viable.

Baku-Tbilisi-Ceyhan (BTC) and South Caucasus Pipeline (SCP)

Roughly 150 miles of the pipeline corridor extending from Baku, Azerbaijan to Turkey will pass through Georgia. This corridor will include the \$3.9 billion Baku-Tbilisi-Ceyhan oil pipeline, which began linefill in May 2005, and the \$1 billion South Caucasus natural gas pipeline, to be completed in late 2006. Regional governments and international investors expect these pipelines to become two of the primary conduits for Caspian Sea region oil and natural gas exports over the next decade. Georgia will be paid transit tariffs by the pipeline's operators, and will be allotted a small percentage of fuel passing through the Republic.

Oil transportation tariffs will rise from \$0.89 to \$1.86 per ton adding \$62.5 million per year to Georgia's national budget, according to a [recent study](#) on the BTC pipeline. The study also estimates that the pipeline would lower the level of unemployment by 33.3 percent and contribute to a rise in GDP. Georgia is obligated to receive 5% of the gas carried by the SCP pipeline, or it must pay a fee. In monetary terms, this quantity is equivalent to around \$17 million per year.

Georgian environmental and security concerns have influenced the pipeline projects significantly, particularly over the past year. Among other things, the Georgian government has expressed worries that the BTC and SCP pipelines' planned route traverses the country's Borjomi Valley, home of Georgia's famed mineral water. In November 2002, the Georgian Ministry of Natural Resources and British Petroleum (BP) came to an agreement stipulating that the path be adjusted around the valley. Later, in December 2002, the Georgian government, working in concert with international experts, presented a new set of environmental security standards for the project.

Several non-governmental organizations from Georgia and around the world, however, continue to express reservations about the pipeline project. Critics such as Amnesty International, Green Alternative, Friends of the Earth, and others have conducted their own studies and fact finding missions, concluding that the pipeline may still be environmentally hazardous.

Given Georgia's internal civil strife as well as hostilities between Armenia and Azerbaijan, the Georgian government has also expressed security concerns over oil flows through the country. In January 2003, U.S. and Georgian officials created a special military unit to guard the pipeline, consisting of U.S.-trained Georgian military personnel. Georgia and foreign investors have also reportedly signed an agreement with Northrop Grumman Corp. to implement an aerial surveillance program.



Baku-Supsa Pipeline and Baku-Batumi Rail routes

On March 8, 1996, Georgian President Eduard Shevardnadze and Azerbaijani President Heydar Aliyev signed a 30-year agreement whereby a portion of the Azerbaijan International Operating Company (AIOC)'s "early oil" will be pumped via Georgia. Specifically, oil will flow to Georgia's Black Sea ports of Supsa and Batumi located 25 miles apart from each other (see map above). The Georgian International Oil Company, a subsidiary of the AIOC, made substantial upgrades to the existing 515-mile pipeline along this route and built the \$565-million Supsa terminal on the Black Sea.

The so-called "western route," for AIOC "early oil", which became operational in April 1999, had an original design capacity of 100,000 bbl/d. But recent upgrades have raised capacity, and throughput capacity is now around 220,000 bbl/d at Supsa. The Baku-Supsa route, however, was designed to carry only the early oil from the AIOC's development of the Azeri-Chirag-Gunashli fields, and although there has been discussion of increasing the pipeline's capacity to 300,000

bbl/d or even 600,000 bbl/d, AIOC is planning to export its future production via BTC, once it becomes operational. Exports via Baku-Supsa represented roughly 40 percent of AIOC's total exports from Azerbaijan in 2005.

During June 2005, ExxonMobil announced it would begin sending oil by rail from its Azeri fields to the Black Sea port of Batumi. Since then, oil and refined product shipments increased to 190,000 bbl/d in 2005 compared to levels of 134,000 bbl/d in 2004. In March 2006, the Batumi port owner announced it would raise capacity at the port to around 260,000 bbl/d.

Natural Gas from Russia

In 2005, Georgia increased natural gas imports from Russia by 14 percent to 50 Bcf. During 2006, the country's gas consumption is expected to rise to almost 80 Bcf. Almost all (70 Bcf) of Georgia's natural gas will be provided under a supply agreement with Kazakhstan via Gazprom pipelines. During 2005 Armenia imported roughly 60 Bcf of natural gas via Russian-owned pipelines.

Natural gas imports to the region come primarily from Russia, and in recent years Turkmenistan and Kazakhstan (piped through Russia). But a change in Russian suppliers this year, from the Russian independent Itera, to state-owned Gazprom, has in effect put large portions of the Caucasus countries' economies in the hands of the Russian monopoly. In January 2006, two explosions damaged the transit pipeline and cut off supplies of Russian natural gas to Georgia and Ukraine. Georgian President Mikhail Saakashvili blamed the explosions on Russia's security services, and Russia accused Saakashvili of being "hysterical".

Armenia and Russia renegotiated the terms of their natural gas contract in early 2006. Armenia's government ceded to Gazprom its 45 percent stake in ArmRosGazprom, a joint venture between Gazprom and Armenia's government that controls the transportation and distribution of Russian natural gas to Armenia. In exchange, Gazprom will freeze prices at \$110 per thousand cubic meters (mcm) until January 1, 2009. Armenia was paying \$60 per mcm the new price for natural gas from Russia until the agreement was signed.

Some of the details of the agreement remain unclear. Gazprom might also obtain various natural gas assets controlled by ArmRosGazprom, such as the Razdan-5 power station in Armenia. Gazprom will also help construct a 140 MW gas-fired electricity turbine at the Razdan-5 plant from which the company can export electricity.

Armenia-Iran Pipeline

Armenia intends to diversify its natural gas supplies in the future by purchasing natural gas from Iran. Construction finally began in early 2005 on the long-awaited Iranian portion of the Iranian-Armenian pipeline. According to the agreement, the construction must be completed by January 1, 2007. The roughly 90-mile natural gas pipeline will be financed by Iranian Bank of Export and Development at a cost of \$30 million. Implementation of the project had been delayed for almost 10 years due to disagreements between the two sides over natural gas prices and the location of the pipeline. An agreement on financing of the construction of the line from the southern Armenian city of Meghri to Kajaran, Iran, was signed between CJSC Electric Networks of Armenia and Iranian company Sanir in Yerevan on Sept 8, 2004. Initially, Armenia will receive 38 Bcf per year (1.08 million cubic meters per year) with plans to double the volume of imports by 2019. In exchange, Armenia will provide Iran with 3 kilowatts of electricity per cubic meter of gas

This is a significant pipeline because it allows Armenia to access Iran's and Turkmenistan's gas exports without having to use Caspian Sea export routes. If Gazprom obtains control over the Armenian share of the pipeline, Georgian efforts to reduce dependence on Russian natural gas exports could falter. According to a Gazprom press release, ArmRosGazprom will also take ownership of a 30-mile Armenian stretch of the Armenia-Iran pipeline as part of the newly renegotiated Armenian-Russian natural gas agreement described above.

Local Issues

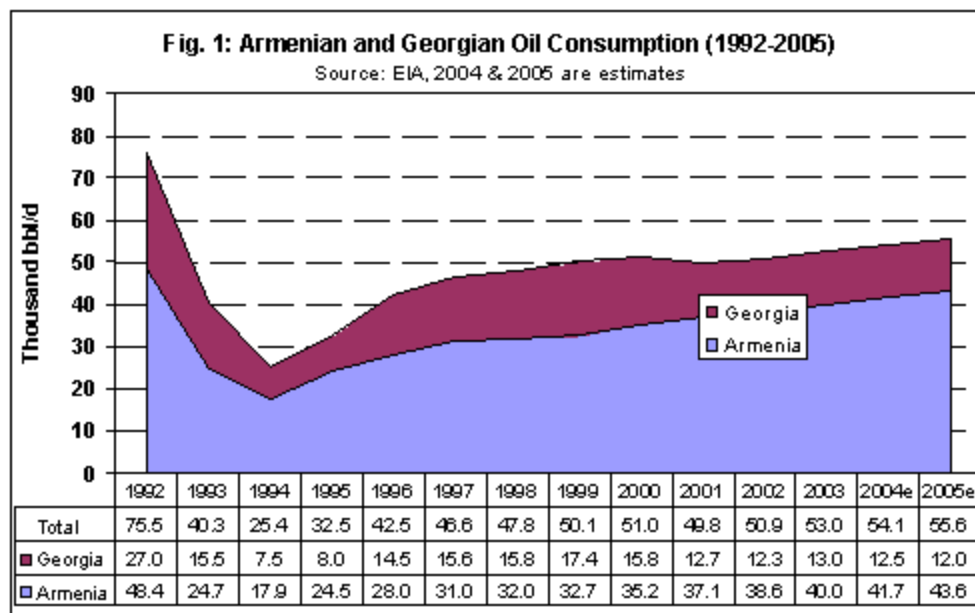
Domestic Energy Issues: Oil

Armenia has no proven oil reserves and Georgia's are quite small. Georgia's proven reserves are estimated at 0.3 billion barrels, from which the country produced 2,000 barrels per day (bbl/d) of crude oil in 2005. Combined, oil consumption in the two countries was 56,000 bbl/d in 2005 (12,000 bbl/d in Georgia and 44,000 bbl/d in Armenia). However, for the Georgian government and several foreign firms, oil import dependence is not a foregone conclusion. Foreign oil companies including Frontera (U.S.), and Canargo (U.S.) are involved in both oil exploration on and offshore, and well work-overs are being designed to increase production.

Armenia and Georgia are largely dependent on Russia for their energy needs. Turkmenistan and Kazakhstan also export small amounts of natural gas to the Caucasus Region. Small energy

resources exist in Georgia that can be developed.

Most of the region's oil demand is met through imports from Russia and Azerbaijan. In both countries, consumption fell drastically following independence in 1991 and 1994 (roughly 70% in Georgia and 90% in Armenia). But since around 1995, Georgian consumption has increased exponentially and doubled its 1992 levels. In comparison, Armenian consumption has made small gains since 1995 and has only recently reached its 1992 levels of consumption (see Fig. 1). Armenian oil demand is constrained, in large part, due to an economic embargo maintained by Azerbaijan to the East, and Turkey to the West. The embargo began shortly after the secession of [Nagorno-Karabakh](#), an Armenian enclave within Azerbaijan in 1988, and has held, despite a cease fire declared in 1994.



Domestic Energy Issues: Natural Gas

Natural gas represents a large portion of total energy consumption in both Armenia and Georgia, accounting for 50% and 24% respectively. Neither country produces significant quantities of natural gas, making both countries heavily dependent on imports to keep their economies running.

Georgian state-controlled oil and gas company Saknaftobi plans to build a \$50 - \$60 million natural gas storage facility, the first in Georgia and plans to invite foreign investors to take part in the project. Natural gas stored in the facility is expected to meet Georgia's consumption for two months. Georgia is also trying to boost output at its own natural gas deposits, some of which are developed by CanArgo, a Guernsey-based oil and gas company that operates mainly in the Commonwealth of Independent States (CIS).

Domestic Energy Issues: Electricity

Armenia and Georgia have significant domestic electricity generation resources, notwithstanding their lack of fossil fuel. In Armenia, non-thermal domestic electricity generation accounted for almost 60% of total generation in 2002 (32% nuclear and 26% hydroelectric). Likewise in Georgia, hydroelectric power accounted for 81% of generation (see graph above).

Despite a diverse fuel supply base, electricity supply within the republics, especially Georgia, has been problematic. Several times throughout 2003 and 2004, non-payment disputes between Georgia and its natural gas and electricity suppliers, Russia and Armenia, have caused intermittent supply disruptions. Both Armenia and Georgia experienced outages in January 2003 when a natural gas line from Russia was accidentally ruptured, resulting in rolling power outages and the total shutdown of public transportation. Several other malfunctions have left the populace without power for days at a time.

In response to these problems, regional players have proposed an integrated regional utility network. Capitalizing on this suggestion, Russian electricity monopoly Unified Energy Systems (UES) has effectively taken control of the Caucasus electricity industry, paralleling maneuvers by Gazprom in the Caucasus' natural gas industry. In July 2003, UES purchased 75% of T'bilisi's electricity network, as well as several electric generating facilities, from an American investor, AES. This move effectively surrendered control over Georgia's electric energy system to UES effective September 2003. UES has made similar moves in Armenia, offering to cancel out that country's sizeable debt for nuclear fuel through the acquisition of Armenia's aging electricity

infrastructure. In addition, UES has been granted license to operate Armenia's sole nuclear power plant, Metsamor (see below), as well as other thermal and hydroelectric facilities.

Armenia has privatized much of its electricity industry, and much of the country's distribution network (map shown [here](#)) is either owned or operated by foreign investors.

Domestic Energy Issues: Metsamor Nuclear Power Plant

Armenia has one nuclear power plant, the controversial Metsamor Nuclear Power Plant (NPP). The power plant, with two VVER-design reactors and a combined capacity of 815 megawatts (MW), was shut down in March 1989 by the Soviet Union because of safety fears following the devastating earthquake that struck Armenia in December 1988. However, faced with a deepening energy crisis due to the country's lack of fossil fuels and an economic blockade imposed by Azerbaijan and Turkey, on November 5, 1995, Armenia decided to resume operation at the 440-MW second unit. The plant, which was built in 1980 with a design life of 30 years, now supplies around 30% of the country's electricity.

Since the Metsamor plant was inactive for six years, Armenian and Russian nuclear officials now believe that the lone reactor functioning at the plant could operate through 2016 and possibly 2031. The European Union (EU), however, is pressuring Armenia to shut the plant earlier, as it considers Metsamor to be a safety risk due to flaws in the plant's Soviet-designed reactors and the region's seismic activity. Additionally, nuclear fuel must be flown in from Russia and then taken along a dirt road from Yerevan because Armenia's border with Turkey is closed. The EU has pledged approximately \$130 million financial support to facilitate its closure, yet Armenian officials say that this would not be enough to cover the economic value of domestic supply and exports that the plant provides to the region.

Electricity Imports

In late 2004 Armenian and Iranian energy ministers signed a swap deal between the two countries under which Iran will provide roughly 35 cubic feet of natural gas to Armenia for electricity production, for every 3 kilowatt-hours of power exported back to Iran. The swap deal also entails the expansion of a power line between Armenia and Iran. A new 220-kv (230-kv in Iran) line began service during November 2004, and Iran and Armenia signed an MOU during June 2005 to implement a 400-kw two-circuit transmission line project, valued at \$90 million. Construction is expected to be complete in 2007.

Summary Tables

Caucasus Region Economic and Energy Statistics

Table 1: Caucasus Region- Economic Indicators

Country	2005 GDP (\$US billion dollars)*	2005 Real GDP Growth Rate (%)	2006F Real GDP Growth Rate (%)	2005E Per Capita GDP (US\$)	2005 Population (Millions)
Armenia	4.9	13.9	8.5	1495	3.26
Azerbaijan	13.0	26.4	21.6	1488	8.44
Georgia	6.5	9.2	8.0	993	4.99

*Billion 1995 \$US at Market Exchange Rate, Source: Global Insight

Table 2: Caucasus Region: Energy Consumption, CO₂ Emissions (2003)

Country	Total Energy Cons.*	Percentage of Total Energy Consumption						Electricity Consumption (Quad Btu)	Electricity Imports(-) & Exports(+)	CO ₂ Emissions**
		Oil	Natural Gas	Coal	Nuclear	Hydro	Other			
Armenia	0.172	49%	28%	0%	12%	10%	0%	0.0198	4.16%	8.99
Azerbaijan	0.634	42%	54%	0%	0%	4%	0%	0.0593	-8.89%	36.48
Georgia	0.139	18%	27%	0%	0%	53%	0%	0.0232	-12.48%	3.76

Source: EIA

*Quadrillion Btu, **Million metric tons of carbon dioxide, % of electricity consumption

Table 3: Caucasus Region- Energy Statistics (2004)

OIL			
Country	Reserves (in billion bbl/d)	Production (1,000 bbl/d)	Consumption (1,000 bbl/d)
Armenia	0.0	0.0	42.0
Azerbaijan	0.7-1.3	328.0	114.0
Georgia	0.3	2	12.5
NATURAL GAS			
Country	Reserves (Tcf)	Production (Bcf)	Consumption (Bcf)
Armenia	0	0.0	47.0
Azerbaijan	30	180.0	330.0
Georgia	0.3	0.71	35.3
ELECTRICITY			
Country	Capacity (GW)	Generation (Bill. kwh)	Consumption (Bill. kwh)
Armenia	2.6	5.7	5.8
Azerbaijan	5.4	21.3	17.4
Georgia	4.4	7.3	9.7

Source: CIS & E. European Energy Databook, CIA, EIA, IEA, Oil and Gas Journal

Links

EIA Links

- [EIA: Country Information on Azerbaijan](#)
- [EIA: Environmental Brief on the Caspian Sea Region \(Feb. 2003\)](#)
- [EIA: Country Information on Iran](#)
- [EIA: Country Information on Kazakhstan](#)
- [EIA: Country Information on Russia](#)
- [EIA: Country Information on Central Asia \(Turkmenistan, Uzbekistan\)](#)

U.S. Government

- [U.S. Agency for International Development](#)
- [U.S. Department of Commerce, Business Information Service for the Newly Independent States \(BISNIS\)](#)
- [U.S. Department of Commerce, Country Commercial Guides](#)
- [U.S. Department of Commerce, Trade Compliance Center: Market Access Information](#)
- [CIA World Factbook](#)
- [U.S. Department of Energy, Office of Fossil Energy: International Affairs](#)
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- [U.S. Department of State: Background Notes](#)
- [U.S. Department of State, International Information Programs](#)
- [U.S. Embassy, Baku](#)
- [U.S. Embassy, Yerevan](#)
- [U.S. Embassy, T'bilisi \(\)](#)
- [U.S. Treasury Department's Office of Foreign Assets Control](#)

General Information

- [Amnesty International: Human Rights on the Line—The Baku-Tbilisi-Ceyhan Pipeline Project](#)
- [Azerbaijan International](#)
- [Azerbaijan Internet Links](#)
- [Caspian Development and Export page](#)
- [Caspian Crossroads Magazine](#)
- [Caspian Environment Programme \(CEP\)](#)
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[President Heydar Aliyev's Home Page](#)
[Salam Iran Home Page](#)
[Silk Road Studies – Study of Implications of BTC](#)
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[The Times of Central Asia](#)
[TRACECA](#)
[United Nations Framework Convention on Climate Change and the Kyoto Protocol](#)
[U.S.-Azerbaijan Council](#)
[The Washington Post](#)
[World Bank](#)

Associations and Institutions

[Columbia University: Russia Subject Index](#)
[Harvard University: Caspian Studies Program](#)
[University of Texas: Perry-Castaneda Map Collection: Link to Detailed Map of Caspian Sea \(North Region\)](#)
[University of Texas: Perry-Castaneda Map Collection: Link to Detailed Map of Caspian Sea \(South Region\)](#)
[University of Texas: Perry-Castaneda Map Collection: Link to Detailed Map of Caspian Sea \(Legend\)](#)

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