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Caucasus Region

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.

Note: Information contained in this report is the best available as of December 2004 and is subject to change.



GENERAL 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. 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 Azerbaijan's unstable bilateral relationship with Armenia.

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 Mikheil Saakashvili was recently elected in January 2004 after the resignation of Eduard Shevardnadze in November 2003. Saakashvili also won a victory with one third of the separatist regions when the leader of Ajaria 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. (To skip ahead to domestic energy issues, see: [Domestic Oil](#), [Natural Gas](#), or [Electricity](#))

TRANSIT ENERGY

With the collapse of the Soviet Union and the increase in oil production from the Caspian Sea region, the Caucasus region has gained in importance from an energy perspective. Previously, the only way for Caspian Sea region oil exports 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, Baku-Tbilisi-Erzurum, and Baku-Supsa, a.k.a the “Western Early Oil Route”)--none of these pass through Armenia. Smaller oil resources exist in the region, but the new infrastructure will allow these smaller projects (i.e. refineries and smaller oil fields) to tie in to the pipeline and become economically viable. (For more on these projects and energy in the Caspian Sea region, see [EIA's Caspian Sea Region Country Analysis Brief](#)).



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Baku-Tbilisi-Ceyhan (BTC) and Baku-Tbilisi Erzurum

Roughly 150 miles of the pipeline corridor extending from Baku, Azerbaijan to Turkey will pass through Georgia. This corridor will include the Baku-Tbilisi-Ceyhan oil pipeline, which is to be completed by early 2005, and the Baku-Tbilisi-Erzurum natural gas pipeline, to be completed in 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.

Georgian environmental and security concerns have influenced the pipeline project significantly, particularly over the past year. Among other things, the Georgian government has expressed worries that the pipeline corridor's 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 came to 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 and even in violation of human rights.

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

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 reportedly is now around 220,000 bbl/d at Supsa and 140,000 bbl/d at Batumi. 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 the Baku-Ceyhan Main Export Pipeline, once it becomes operational. In January 2003, the pipeline was shutdown for two days from an explosion near the Georgian village of Sveneti, roughly 40 miles from T'bilisi. Some analysts have suggested that the explosion was an act of sabotage, instigated by Georgia's separatists groups.

Domestic Energy Issues: Oil

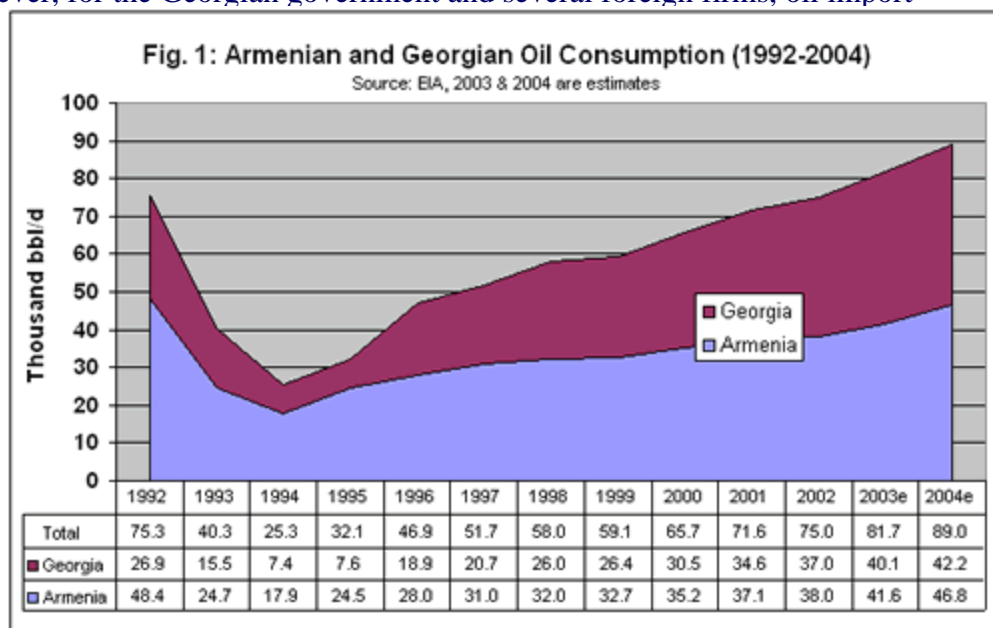
Armenia has no proven oil reserves and Georgia's are quite small. Georgia's proven reserves are estimated at 0.3 billion barrels, from which the country produced 2,000 barrels per day (bbl/d) of crude oil in 2004. Combined, oil consumption in the two countries was 89,000 bbl/d in 2004 (42,200 bbl/d in Georgia and 46,800 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 (Canada) are involved in both oil exploration on and offshore, and well work-overs are being designed to increase production.

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 production (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. Natural gas imports come primarily from Russia, and in recent years Turkmenistan (piped through Russia). But a change in Russian suppliers this



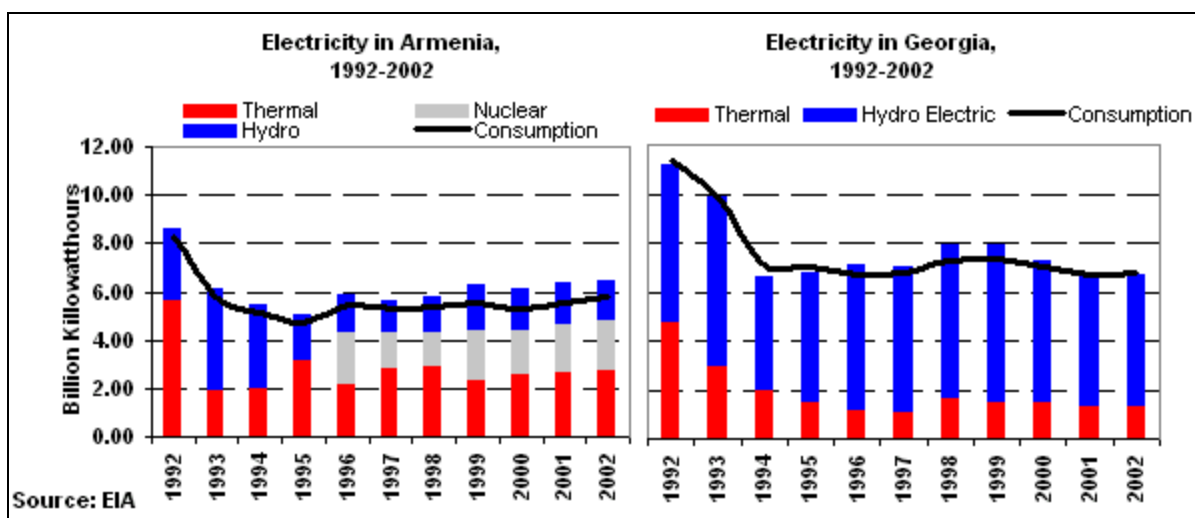
year, from the Russian independent Itera, to state-owned Gazprom, has in effect put large portions of the Caucasus countries' economies in the hands of the Russian monopoly.

In the summer of 2003, Russian state-owned natural gas monopoly, Gazprom, signed long-term supply agreements with both Armenia and Georgia designating Gazprom as the countries' predominant natural gas supplier into the future.

In order to diversify its natural gas supplies, Armenia is very interested in purchasing natural gas from Iran, and recent announcements indicate that construction will finally begin in early 2005 on the long-awaited Iranian portion of an Iranian-Armenian pipeline. 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. Construction began on November 30, 2004 on the Armenian section of the pipeline, and according to the agreement, the construction must be completed by January 1, 2007. Initially, Armenia will receive 38 billion cubic feet per year (Bcf/y) with plans to double the volume of imports by 2019. This is a significant pipeline because it allows Armenia to access Iran and Turkmenistan's gas exports without having to use Caspian Sea export routes.

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 another line with similar capacity will be completed in two years. The companies constructing the project have pledged the interconnect would have a capacity of approximately 450 MW by the time the third transmission line is finished.

Table 1: Caucasus Region- Economic Indicators					
Country	2004 GDP (\$US billion dollars)*	2004 Real GDP Growth Rate (%)	2005F Real GDP Growth Rate (%)	2004E Per Capita GDP (US\$)	2004 Population (Millions)
Armenia	3.7	9.8	7.4	1071	3.43
Azerbaijan	8.2	9.2	9.8	988	8.30
Georgia	5.0	9.1	9.4	993	4.99

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

Table 2: Caucasus Region: Energy Consumption, CO₂ Emissions (2002)

Country	Total Energy Cons.*	Percentage of Total Energy Consumption						2002 Total Electricity Consumption (Quadrillion Btu)	2002 Electricity Imports(+) & Exports(-)~	CO ₂ Emissions**
		Oil	Gas	Coal	Nuclear	Hydro	Other			
Armenia	0.161	50%	25%	0%	15%	11%	0%	0.0198	-4.16%	8.02
Azerbaijan	0.605	40%	57%	0%	0%	2%	0%	0.0593	-1.73%	35.21
Georgia	0.190	41%	29%	0%	0%	29%	0%	0.0232	12.48%	8.58

Source: EIA
 *Quadrillion Btu, **Million metric tons of carbon dioxide, ~ % of electricity consumption

Table 3: Caucasus Region- Energy Statistics (2003)

OIL			
Country	Reserves (in billion bbl/d)	Production (1,000 bbl/d)	Consumption (1,000 bbl/d)
Armenia	0.0	0.0	41.6
Azerbaijan	0.7-1.3	328.0	114.0
Georgia	0.3	2.1	40.1
NATURAL GAS			
Country	Reserves (Tcf)	Production (Bcf)	Consumption (Bcf)
Armenia	0	0.0	46.6
Azerbaijan	30	180.0	330.0
Georgia	0.3	0.6	35.3
ELECTRICITY			
Country	Capacity (GW)	Generation (Bill. kwh)	Consumption (Bill. kwh)
Armenia	2.6	6.5	5.8
Azerbaijan	5.2	17.6	17.4
Georgia	4.4	6.7	6.8

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

Sources for this report include: AFX-Asia, Agence France Presse, Asia Pulse, Associated Press, BBC Monitoring Trans Caucasus Unit, Central Asia & Caucasus Business Report, Caspian News Agency, Caspian Business Report, CIA World Factbook, DRI/WEFA Eurasian Economic Outlook, The Economist, The Financial Times, FSU Oil and Gas Monitor, Interfax News Agency, The International Herald Tribune, ITAR-TASS News Agency, The Moscow Times, Petroleum Economist, PlanEcon, PR Newswire, Radio Free Europe/Radio Liberty, Reuters, RosBusinessConsulting Database, Russian Economic News, The Russian Oil & Gas Report, Turkish Daily News, U.S. Department of Energy, U.S. Energy Information Administration, U.S. Department of State, and World Markets Online.

LINKS

For more information from EIA on the Caucasus Region, please see:

[EIA: Country Information on Armenia](#)

[EIA: Country Information on Azerbaijan](#)

[EIA: Country Information on Georgia](#)

Links to other U.S. government sites:

[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, International Trade Administration: Energy Division](#)

[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](#)

[Library of Congress Country Study on the former Soviet Union](#)

[Radio Free Europe/Radio Liberty \(RFE/RL\)](#)

[RFE/RL: Energy Politics in the Caspian and Russia](#)

[U.S. Department of State: Background Notes](#)

[U.S. Department of State, International Information Programs](#)

[U.S. Embassy, Baku, Azerbaijan](#)

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[Armenpress: Armenian State News Agency](#)

[Azerbaijan International](#)

[Azerbaijan Internet Links](#)

[The Baku Ceyhan Campaign](#)

[British Petroleum: The Caspian](#)

[Caspian Crossroads Magazine](#)

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