

COUNTRY ANALYSIS BRIEFS

Colombia

Last Updated: June 2006

Background

Colombia is an important petroleum and coal producer, although political unrest and stagnant reserves have led to decreased exports in recent years. Colombia aims to boost hydrocarbon exploration to preserve its status as a net oil exporter in the longer term.

Colombia has faced decades of political and economic struggles, much of it linked to narcotics trafficking and civil war. Since taking office in August 2002, President Alvaro Uribe has enacted political, fiscal and social reform policies, combined with increased security measures in order to promote economic growth and stability. The policies of the Uribe administration have had some success in improving economic conditions and the security situation in the country, and President Uribe was able to gain re-election in 2006. During 2005, Colombia's real gross domestic product (GDP) grew by 5.1 percent, slightly up from 4.8 percent in 2004. Inflation continued to decline during 2005, reaching 5.1 percent, down from 5.9 percent in 2004, but much lower than the double-digit rates seen in the late 1990s.



Regaining authority over rural territory has been a major tenet of Uribe's administration. Since 2002, Uribe's "democracy security" strategy is believed to have contributed to the containing of two leftist insurgent groups, the Fuerzas Armadas Revolucionarias de Colombia (FARC) and the Ejército de Liberación Nacional (ELN), as well as a right-wing paramilitary organization, the Autodefensas Unidas de Colombia (AUC). While the security situation has improved dramatically, Colombia's longstanding civil conflict has still taken its toll on the country's energy sector. Though the frequency of attacks against energy infrastructure has declined in recent years, the country's pipelines and power lines are still regularly sabotaged by insurgent groups.

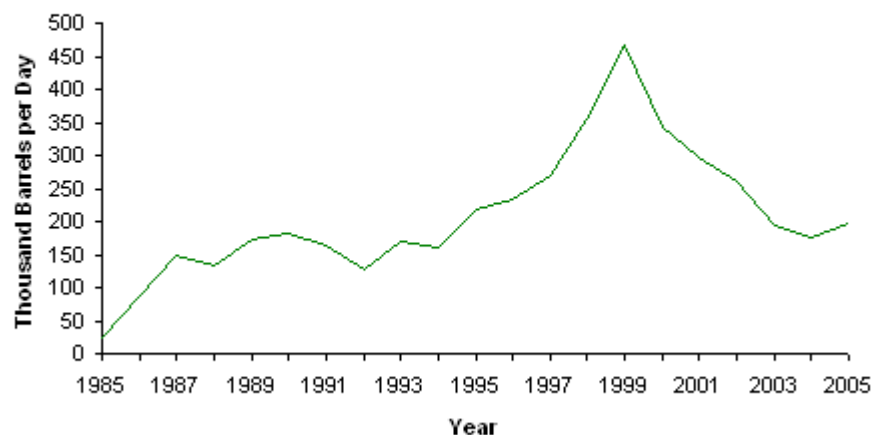
Oil

Colombia's oil production has declined significantly since peaking in the late 1990s.

According to *Oil and Gas Journal (O&GJ)*, Colombia had 1.54 billion barrels of proven crude oil reserves in 2005, the fifth-largest in South America. The country produced 526,000 barrels per day (bbl/d) of oil in 2005, down from 529,000 bbl/d in 2004. Colombia's oil production has declined steadily since 1999, when it peaked at 830,000 bbl/d, due to a lack of sizable new reserve discoveries. The country exports about half of its oil production, with the bulk of those exports (156,000 bbl/d) going to the United States in 2005. Much of Colombia's crude oil is lighter

and sweeter than that of other major Latin American oil producers, with its three export crude oils (Cusiana, Cupiagua and Orito) ranging between 28° and 36° API.

**Colombia's Petroleum Exports to the United States
1985-2005**



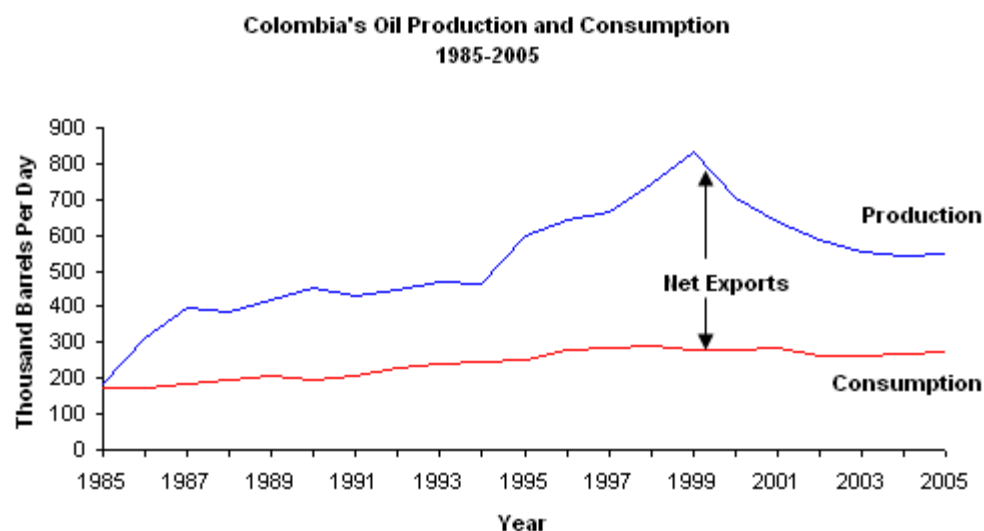
Source: EIA, *Petroleum Supply Annual*

Since 1999, Colombia's government has taken measures to make the investment climate more attractive to foreign oil companies. Sector liberalizations include allowing foreign oil companies to own 100 percent stakes in oil ventures; the establishment of a lower, sliding-scale royalty rate on oil projects; longer exploration licenses; and forcing state-owned Ecopetrol to compete with private operators. The sliding scale royalty schedule has been one of the most successful measures introduced by the government. The scale establishes an 8 percent royalty rate on the smallest oil fields; with over 90 percent of Colombia's fields containing less than 60 million barrels, the low royalty rate has encouraged investments by small- and medium-sized operators. The reforms have sparked a renewed interest in Colombia's upstream sector, with the government signing a record number of production contracts with foreign oil companies during 2004. As of May 2006, ANH had awarded 15 new exploration licenses to foreign firms.

The improvement in Colombia's security situation has been a significant contributor to the renewed interest by international oil companies. Kidnappings in the country fell by 60 percent in 2004, and there was a substantial decline in the number of attacks against oil infrastructure. For example, there were just 34 attacks against the Cano-Limon oil pipeline in 2003, down from 170 in 2001.

Exploration and Production

The bulk of Colombia's crude oil production occurs in the Andes foothills and the eastern Amazonian jungles. The largest field in the country is the Cusiana/Cupiagua complex operated by BP. Colombia's second largest field is Cano Limon, operated by Occidental. In April 2004, Occidental extended its contract for Cano Limon; under terms of the deal, Ecopetrol's share of production will increase to 55 percent by 2008, with Occidental investing \$263 million into the field over a period of six years. Other important oil projects in Colombia include the Surorientale field, operated by a consortium led by Petrotesting Colombia; the Guando field, operated by Petbras and Canada's Nexen; and the Orito block, operated by Canada's Petrobank Energy and Resources.



Source: EIA, *International Energy Annual*; *International Petroleum Monthly*; internal EIA estimates

Colombia has numerous, smaller fields spread throughout the oil-producing regions of the country. Vast unexplored and potentially hydrocarbon-rich territories remain in Colombia, which shares many of the geological features of its oil-rich neighbor Venezuela. During the last several years, some of the companies that signed E&P contracts with Ecopetrol include, Chile's Sipetrol; Colombian-based [Argosy Energy International](#); Petrominerales, a subsidiary of Canada's Petrobank; [Petrobras](#); Nexen; US-based Mercantile Oil & Gas; [Occidental](#); and Russia's Lukoil. There has also been renewed interest in Colombia's offshore basins. In 2005, BHP Billiton signed an agreement for exploratory drilling in the Fuerte Block off Colombia's Caribbean coast. ANH has also begun seismic studies of offshore blocks in the Pacific Ocean, which industry analysts believe could hold significant oil reserves.

Even though there is considerable optimism about the prospects of greater opportunities in Colombia's upstream oil sector, there have been a series of significant setbacks for international oil majors. In March 2003, Ecopetrol officials announced that they had discovered one of the largest oil deposits in over a decade, the Gibraltar-1 in the Siriri Block. They estimated that the area contained 200 million barrels of oil. However, following criticism of the study by industry analysts and government officials, Ecopetrol released a revised estimate of potential reserves in the Gibraltar-1 field in 2004 that showed only 15 million barrels of oil and 630 million cubic feet (Mmcf) of natural gas. In 2003, BP failed to find commercially-viable oil reserves in the Niscota block after spending \$45 million and drilling to 19,000 feet.

Pipelines

Colombia has five major oil pipelines, four of which connect production fields to the Caribbean export terminal at Covenas. These include the 500-mile Ocesa pipeline, which transports 615,000 bbl/d from the Cusiana and Cupiagua fields; the 460-mile Cano Limon pipeline; and the smaller Alto Magdalena and Colombia Oil pipelines. The fifth pipeline, the TransAndino, transports crude from Colombia's Orito field in the Putumayo basin to Colombia's Pacific port at Tumaco; TransAndino also carries crude oil produced in Ecuador.

Colombia's oil pipelines have been popular targets for rebel groups, including sabotage and oil theft, although the frequency of attacks has declined dramatically since 2002. As mentioned above, attacks against the Cano-Limon pipeline have dropped dramatically, though a bombing in February 2005 shut the pipeline for several weeks. The TransAndino and Ocesa pipelines experienced only a handful of attacks in 2003.

Proposed Pipelines

In 2004, Brazil's Synergy Group announced that it would build a \$700 million, 435-mile pipeline linking its Rubiales field to the Ocesa pipeline. The company hoped to complete the 80,000-bbl/d project by 2008. The Colombian government has also held discussions with Venezuela about a proposed oil pipeline to export that country's crude oil to Colombia's deepwater Pacific ports. The plan, backed by Chinese oil companies, would include 620 miles of new pipelines and utilize

unused capacity on existing ones.

Downstream

According to OGJ, Colombia had 285,900 bbl/d of crude oil refining capacity in January 2006. The country has five major refineries, all owned by Ecopetrol. The largest is the Barrancabermeja-Santander facility, with a capacity of 205,000 bbl/d. In late 2004, the Colombian government approved plans to build a privately-financed refinery in Sebastopol. The 30,000-bbl/d project has also received support from the US Export-Import Bank and the World Bank's International Finance Corporation (IFC). In 2006, four companies (BP, Petrobras, Marubeni, and Glencore) submitted bids to expand the capacity of the Cartagena refinery from 75,000 bbl/d to 140,000 bbl/d; completion of the project is scheduled for 2010 at a cost of \$800 million. Although Colombia is a net oil exporter, it must import petroleum products, as domestic demand outstrips refining capacity.

Natural Gas

OGJ reported that Colombia had proven natural gas reserves of 4.0 trillion cubic feet (Tcf) in 2006. The country produced and consumed 218 billion cubic feet (Bcf) in 2004, both slightly higher than 2003. The government's Plan de Masificación de Gas Natural (Natural Gas Mass Consumption Plan) aims to increase domestic natural gas use and establish Colombia as the "gas hub" for the Andean region.

Exploration and Production

Colombia has natural gas reserves spread across 18 basins, seven of which have active production. The bulk of Colombia's natural gas reserves are located in the Llanos basin, although the Guajira basin accounts for most of current production. Chevron is the largest natural gas producer in Colombia. Its three fields in the Guajira basin, Chuchupa, Ricohacha, and Ballena, produced an average of 465 Mmcf per day (Mmcf/d) in 2005.

In October 2004, U.S.-based Drummond, one of the largest coal producers in Colombia, announced that it would begin drilling for coal bed methane (CBM) at its properties in the country. While most of the gas will fuel power generation at its facilities, Drummond also planned to sell any surpluses on the open market. In May 2004, a consortium of Petrobras (40 percent), ExxonMobil (40 percent), and Ecopetrol (20 percent) signed an agreement to explore for natural gas in the Tayrona block in the offshore Caribbean. Petrobras will operate the exploration phase, while ExxonMobil will operate any production stemming from the exploration activities. The agreement marked the first upstream investment by ExxonMobil in Colombia since 1996. Colombia planned to launch a new natural gas exploration licensing round in late 2006 covering its offshore basins, especially those in the Caribbean Sea.

In June 2004, BP was awarded a natural gas production license for the Cuisiana/Cupiagua complex, which the company hopes will compensate for the reduction in oil production at the site. To better utilize the natural gas resources at the field, BP plans to begin construction by 2008 on a gas-to-liquids (GTL) plant at the field. The plant will have an initial capacity to produce 84,000 bbl/d of high-quality diesel fuel.

Pipelines

Ecogas operates some 2,000 miles of natural gas trunk pipelines in Colombia. The three main lines include the Ballena-Braccancabermeja, linking Chevron's Ballena field on the northeast coast to Braccancabermeja in central Colombia; the Barrancabermeja-Nevia-Bogota line, which integrates the Colombian capital into the transmission network, and the Mariquita-Cali line through the western, Andean foothills. There are other small stretches of pipeline operated by private firms.

In April 2003, Colombia and Venezuela agreed to build a \$320-million, 200-Mmcf/d natural gas pipeline linking Colombia's Guajira basin to Venezuela's Maracaibo region. Initially, the pipeline will carry natural gas from Colombia to Venezuela, but there has also been talk of eventually reversing the flow of the pipeline to allow Venezuelan natural gas exports instead. Colombia has also held discussions with Panama and Ecuador about extending the pipeline into those countries. Construction on the project should begin in July 2006 and be completed in 2008.

Coal

Colombia had 7,300 million short tons (Mmst) of recoverable coal reserves in 2003, consisting of high-quality bituminous coal and a small amount of metallurgical coal. The country has the

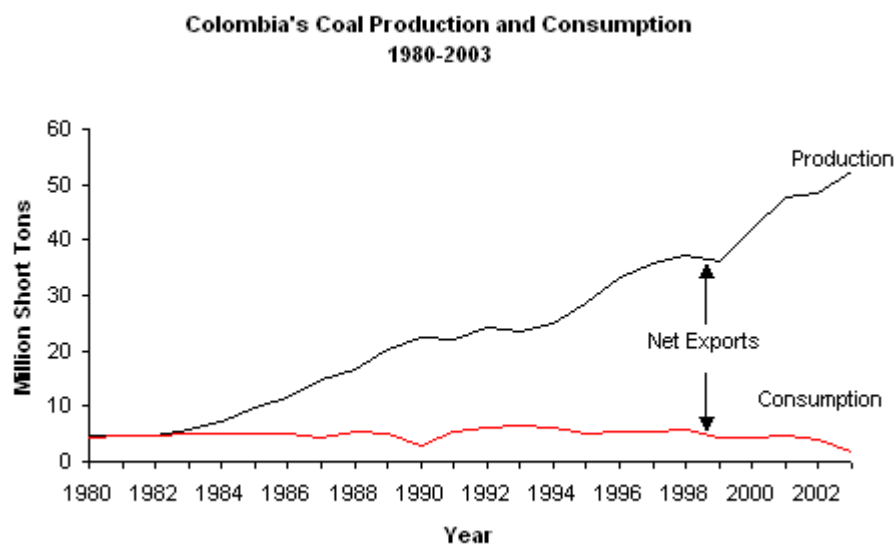
The Colombian government has sought to encourage greater domestic consumption of natural gas.

Colombia is one of the world's largest coal exporters.

second-largest coal reserves in South America, behind Brazil, with most of those reserves concentrated in the Guajira peninsula in the north and the Andean foothills. Colombia's coal is relatively clean-burning, with a sulfur content of less than 1 percent. Over the past decade, production has more than doubled, reaching 52.5 Mmst in 2003. It is likely that Colombia's coal production will continue to increase in coming years, as exploration and profitable developments continue throughout the north and interior of the country.

Sector Organization

Colombia completed the privatization of its coal sector in 2004 with the closing of Minercol, the former state-owned coal company. The largest coal producer in the country is the Carbones del Cerrejon consortium, composed of Anglo-American, BHP Billiton, and Glencore. The consortium operates the Cerrejon Zona Norte (CZN) project, the largest coal mine in Latin America and the largest open-cast coal mine in the world. CZN, which consists of an integrated mine, railroad, and coastal export terminal, produced 25 Mmst in 2004.

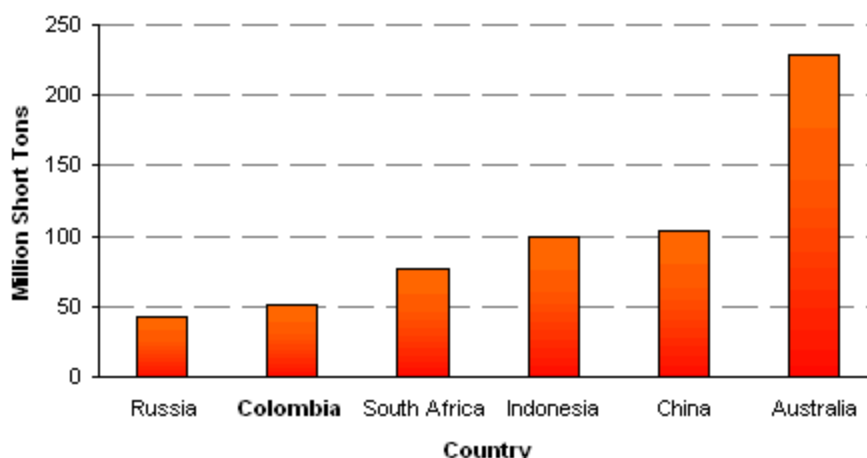


Drummond operates the second-largest coal mine in Colombia, La Loma, also an integrated mine-railway-port project. La Loma produced 12 Mmst of coal in 2001. The company also owns the El Descanso mine, in the vicinity of La Loma. In 2004, Glencore announced that it would purchase the Jagua coal mine, Colombia's third-largest, combining it with its existing integrated coal project, Prodeco. The acquisition will give Glencore total coal production capacity in Colombia of 8.3 Mmst per year.

Exports

Currently, most Colombia coal exports go to Europe, North America, and Latin America, as the vast majority of Colombia's coal producing and exporting infrastructure is located on the Caribbean coast. However, the country hopes that a planned expansion of the Panama Canal would allow it to export coal to new markets in Asia. Some of the non-integrated coal mines in Colombia export their production via the Venezuelan ports of La Cieba and Maracaibo. In early 2005, tensions between the two countries over the capture of Rodrigo Granda, the "foreign minister" of the Revolutionary Armed Forces of Colombia (FARC) caused Venezuela to close access to these ports, affecting some exports.

World's Top Net Coal Exporters, 2003



Source: EIA, *International Energy Annual*

In order to sustain the rise in coal exports, Colombia will need to invest in transportation infrastructure to remove potential production bottlenecks. In May 2006, President Uribe announced plans to build a \$300 million export terminal near Santa Marta. The facility will have special measures to reduce the spreading of coal dust in the nearby area, a popular tourist destination. Drummond also has plans to install a second rail line at its La Loma complex.

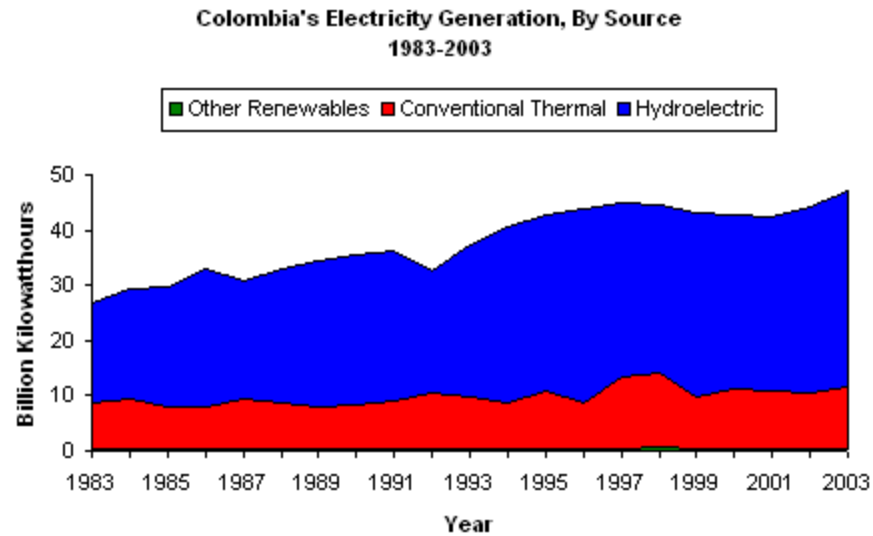
Electricity

Colombia is dependent upon hydropower for the bulk of its electricity generation.

Colombia had 13.8 gigawatts of installed electricity generating capacity in 2003, with some 90 power plants in the country. In 2003, Colombia generated 47.1 billion kilowatthours (Bkwh) of electricity while consuming 42.9 Bkwh. As is common with South American countries, the bulk of Colombia's electricity generation (76 percent) comes from hydroelectricity, with conventional thermal (mostly coal and natural gas) and other renewables making up the remainder.

Sector Organization

The Colombian electricity sector contains a mixture of public- and privately-owned companies. Deregulation in the 1990s opened the sector to private investment and established a wholesale electricity market. CREG has principle regulatory oversight of the sector. CREG mostly maintains a strict division between generation, transmission, and distribution activities, though it does allow some legacy companies to maintain vertically-integrated operations. In the generation sector, there are about three dozen active companies, and the major players are EMGESA, EEPM, ISAGEN, and EPSA. EMGESA is the largest, controlling about one-fifth of Colombia's generating capacity. As part of liberalization plans, the Colombian government has continued to reduce its stake in generating companies. The largest electricity distributing company in Colombia is CODENSA, which serves over one million customers in Bogota and surrounding areas.



Transmission

Colombia's electricity transmission system consists of two grids, one serving the Atlantic coast and the other serving the interior, with numerous interconnectors running between the two. While many companies own different parts of the grid, the largest holder is Interconexión Eléctrica SA (ISA), controlling about 70 percent of the system. Formerly wholly-owned by the Colombian government, the government's stake in ISA has declined to 59 percent, with the balance held by private investors. In 2005, ISA began construction of two high-voltage transmission lines connecting Bogotá to the Atlantic coast that would add capacity and improve the redundancy of the system.

Despite significant improvements in the security situation in the country, Colombia's electricity sector continues to face serious supply and financial challenges due to lack of investment, security risks and power theft. Repeated attacks on electricity infrastructure increase the risk of blackouts and raise cost of operation for the electricity sector. ISA reported that there were 227 attacks against its electricity towers in 2005.

Hydroelectricity

As mentioned above, hydroelectricity is the dominant source of electric power generation in Colombia. The largest facilities in the country include the San Carlos (1,240 MW), Guavio (1,000 MW) and Chivor (1,000 MW) hydroelectric plants. Two new hydro projects are scheduled for completion in coming years, the Pescadero-Ituando plant (2008) and the Porce III plant (2009). The country's reliance on hydropower has led to supply crunches in the past; in 1992, a severe drought left the country unable to meet electricity demand, leading to power rationing and periodic blackouts. As a result, the government has encouraged the construction of coal and natural gas-fired power plants to diversify the electricity supply. Despite these efforts, the percentage of Colombia's electricity generated by hydropower has actually increased since the early 1990s.

Regional Interconnections

Colombia has an active electricity trade with its neighbors. The country often supplies surplus power to neighboring Ecuador. There are two interconnectors between the countries, both completed in 2003. There have also been initiatives to increase electricity trading between Colombia and Venezuela. The Andean Community, which includes Colombia, has taken steps to further integrate the power sectors of its members with an eventual goal of creating a single, regional electricity market. Finally, Colombia has looked towards Central America as a potential source of electricity trading.

Profile

Country Overview

President	Alvaro Uribe Velez (Since August 2002)
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Location	Northern South America, bordering the Caribbean Sea, between Panama and Venezuela, and bordering the North Pacific Ocean, between Ecuador and Panama
Independence	20 July 1810 (from Spain)
Population (2005E)	42,954,279
Languages	Spanish
Religion	Roman Catholic 90%, other 10%
Ethnic Group(s)	mestizo 58%, white 20%, mulatto 14%, black 4%, mixed black-Amerindian 3%, Amerindian 1%

Economic Overview

Currency/Exchange Rate (June 21, 2006)	1 Colombia Peso (COP) = 0.0004 USD
Inflation Rate (2004E, 2005E, 2006F)	5.9%, 5.1%, 4.0%
Gross Domestic Product (GDP, 2005E)	\$122 billion
Real GDP Growth Rate (2004E, 2005E, 2006F)	3.9%, 4.8%, 5.1%
Unemployment Rate (2005E)	10%
External Debt (2005E)	\$37 billion
Exports (2005E)	\$21.7 billion
Exports - Commodities	petroleum, coffee, coal, apparel, bananas, cut flowers
Exports - Partners (2004E)	US 40.9%, Ecuador 5.8%, Venezuela 4.8%
Imports (2005E)	\$20.1 billion
Imports - Commodities	industrial equipment, transportation equipment, consumer goods, chemicals, paper products, fuels, electricity
Imports - Partners (2004E)	US 30.6%, Venezuela 5.8%, Brazil 5.2%, Japan 5.2%, Germany 5.1%, Mexico 5%, China 4.2%
Current Account Balance (2005E)	-\$2.0 billion

Energy Overview

Proven Oil Reserves (January 1, 2006E)	1.5 billion barrels
Oil Production (2006E)	526 thousand barrels per day
Oil Consumption (2005E)	264 thousand barrels per day
Crude Oil Distillation Capacity (2006E)	286 thousand barrels per day
Proven Natural Gas Reserves (January 1, 2006E)	4 trillion cubic feet
Natural Gas Production (2004E)	218 billion cubic feet
Natural Gas Consumption (2004E)	218 billion cubic feet
Recoverable Coal Reserves (2003E)	7,287.4 million short tons
Coal Production (2003E)	52.5 million short tons
Coal Consumption (2003E)	1.9 million short tons
Electricity Installed Capacity (2003E)	13.8 gigawatts
Electricity Production (2003E)	47.1 billion kilowatt hours
Electricity Consumption (2003E)	42.9 billion kilowatt hours

Total Energy Consumption (2003E)	1.2 quadrillion Btus*, of which Oil (47%), Hydroelectricity (32%), Natural Gas (19%), Coal (4%), Nuclear (0%), Other Renewables (0%)
Total Per Capita Energy Consumption (2003E)	26.1 million Btus
Energy Intensity (2003E)	4,084.9 Btu per \$2000-PPP**

Environmental Overview

Energy-Related Carbon Dioxide Emissions (2003E)	52.1 million metric tons, of which Oil (70%), Natural Gas (22%), Coal (8%)
Per-Capita, Energy-Related Carbon Dioxide Emissions (2003E)	1.2 metric tons
Carbon Dioxide Intensity (2003E)	0.2 Metric tons per thousand \$2000-PPP**
Environmental Issues	deforestation; soil and water quality damage from overuse of pesticides; air pollution, especially in Bogota, from vehicle emissions
Major Environmental Agreements	party to: Antarctic Treaty, Biodiversity, Climate Change, Climate Change-Kyoto Protocol, Desertification, Endangered Species, Hazardous Wastes, Marine Life Conservation, Ozone Layer Protection, Ship Pollution, Tropical Timber 83, Tropical Timber 94, Wetlands signed, but not ratified: Law of the Sea

Oil and Gas Industry

Organization	Mostly privatized and open to foreign investors. State-owned Ecopetrol still controls some production resources.
Major Oil/Gas Ports	Tumaco, Cartagena, Covenas
Foreign Company Involvement	BP, Occidental, ChevronTexaco
Major Oil Fields (production, bbl/d)	Cupiagua/Cusiana; Cano Limon, Suroriente, Guando.
Major Natural Gas Fields (production, Bcf/d)	Chuchupa, Ricohacha, and Ballena.
Major Pipelines (capacity, Mmcf/d)	Ocensa, Cano Limon pipeline, Alto Magdalena, Colombia Oil, TransAndino, Mariquita-Cali, Ballena-Barrancabermeja, Barrancabermeja-Neiva-Bogota
Major Refineries (capacity, bbl/d)	Barrancabermeja - Santander (205,000 bbl/d), Cartagena (75,000 bbl/d); Apiay (2,250 bbl/d), Orito (1,800 bbl/d), and Tibu (1,800 bbl/d)

* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power. The renewable energy consumption statistic is based on International Energy Agency (IEA) data and includes hydropower, solar, wind, tide, geothermal, solid biomass and animal products, biomass gas and liquids, industrial and municipal wastes. Sectoral shares of energy consumption and carbon emissions are also based on IEA data.

**GDP figures from OECD estimates based on purchasing power parity (PPP) exchange rates.

Links

EIA Links

[EIA - Country Information on Colombia](#)

U.S. Government

[CIA World Factbook, Colombia](#)

[U.S. Census Bureau, U.S.-Colombian Trade](#)

[U.S. State Department Consular Information Sheet, Colombia](#)

General Information

[Latin American Network Information Center \(LANIC\), Colombia](#)

Associations and Institutions

[The Latin American Integration Association \(ALADI\)](#)

Foreign Government Agencies

[Colombia Government Trade Bureau in Washington, D.C.](#)
[Departamento Administrativo Nacional de Estadística](#)

Oil and Natural Gas

[Occidental Petroleum](#)

[Ecogas](#)

[Ecopetrol, Colombian National Oil Company](#)

Coal

[Cerrjon Coal Project](#)

[Drummond](#)

Electricity

[Emgesa](#)

Sources

Argus LatAm Energy and Latin American Power Watch

Cambridge Energy Research Associates

Coal Americas

EcoPetrol

Economist Intelligence Unit

Global Insight

International Oil Daily

Latin Finance

Lloyd's List

Ministerio de Energia y Minas

Mining Journal

Noticias Financieras

Oil Daily

Petroleum Intelligence Weekly

Platts Oilgram News

U.S. Coal Review

U.S. Energy Information Administration

U.S. Geological Survey

World Markets Analysis

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