

COUNTRY ANALYSIS BRIEFS

Central America

Last Updated: October 2005

Background

Although Central America has limited energy resources, it is important to world energy markets as a transit center for oil via the Panama Canal and as a potential energy transit center between North and South America.

The countries of Central America, including Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama, have traditionally been dependent upon agricultural exports for a large portion of their economic activity. However, these countries have begun to diversify their economies towards manufacturing and tourism.



Central American countries have sought to integrate their economies with world markets. Along these lines, the [Dominican Republic-Central American Free Trade Agreement](#) (DR-CAFTA), approved by the United States in late 2005, will likely boost the region's economic prospects and increase access to the region's largest export market. Meanwhile, three countries (El Salvador, Guatemala, and Honduras) have signed free trade agreements with Mexico, and there has also been progress on further trade liberalization with the Andean Community.

With almost no domestic hydrocarbon reserves, all seven Central American countries rely heavily on imported oil for their energy needs. As a result, the countries have been hurt by high world oil prices in recent months. Partially offsetting this, many have been able to secure preferential pricing from Mexico and Venezuela (see below). Besides oil, Central America has a large amount of installed hydroelectric capacity. Still, the region is nevertheless dependent upon imports for some three-fourths of its total energy consumption.

Oil

Guatemala is the only oil producer in Central America.

Guatemala is the only oil-producing country in Central America, averaging 19,800 barrels per day (bbl/d) in 2004. In the same year, the region consumed 303,000 bbl/d of oil. Increased use of oil- and diesel-fired power plants and robust economic growth have caused Central American oil consumption to almost double since 1980. The largest oil consumer in the region in 2004 was Panama, with 80,200 bbl/d, while the smallest consumer was Belize, with only 8,800 bbl/d.

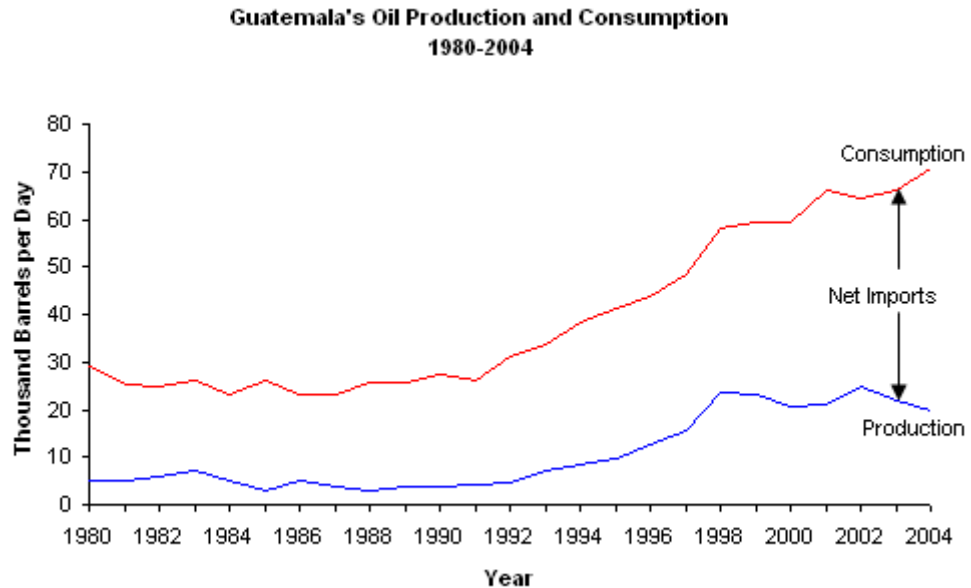
Because of the lack of oil production in the region, Central America is dependent upon imports for the large majority of its oil needs. To help meet the oil needs of the mostly-poor countries in the region, Central America receives oil under preferential terms and pricing from Mexico and

Venezuela. Under the San Jose Pact, Mexico and Venezuela supply Central America and four Caribbean islands with 160,000 bbl/d of crude oil and petroleum products. In addition, Venezuela provides oil to the region under the Caracas Energy Accord.

Exploration and Production

Guatemala

According to *Oil and Gas Journal (OGJ)*, Guatemala contains an estimated 526 million barrels of proven oil reserves. Most of the country's oil production occurs in its northern jungles, adjacent to the border with Mexico. UK-based Perenco accounts for the vast majority of oil production in the country. Due to a lack of domestic refining capacity, though, almost all production is exported to the United States, and the country must import petroleum products.



In March 2005, Guatemala opened its first oil licensing round since 1997. The country offered two blocks with known proven reserves, A6 and A7, and two additional, unexplored blocks, Cotcal and Piedras Blancas.

Nicaragua

There has been some interest in oil exploration in Nicaragua. The country has awarded exploration licenses for five blocks in its offshore Pacific and Atlantic basins, though none of these licenses has led to actual exploration activities. Nicaragua has had a long-running territorial dispute with Colombia over areas of the Caribbean Sea surrounding the San Andreas and Providencia islands, areas thought to contain commercial quantities of oil reserves. In June 2005, Nicaragua lodged a formal protest with Colombia over the granting of exploration concessions in the area by the Colombian government.

Costa Rica

In November 1999, U.S.-based Harken Energy began a seismic exploration program in Costa Rica in the Caribbean Sea. Despite promising results, the company has been unable to acquire the approval of the Costa Rican government to commence drilling operations due to opposition from environmental and indigenous activists. The current Pacheco administration has expressed its opposition to any oil activities in the country.

Belize

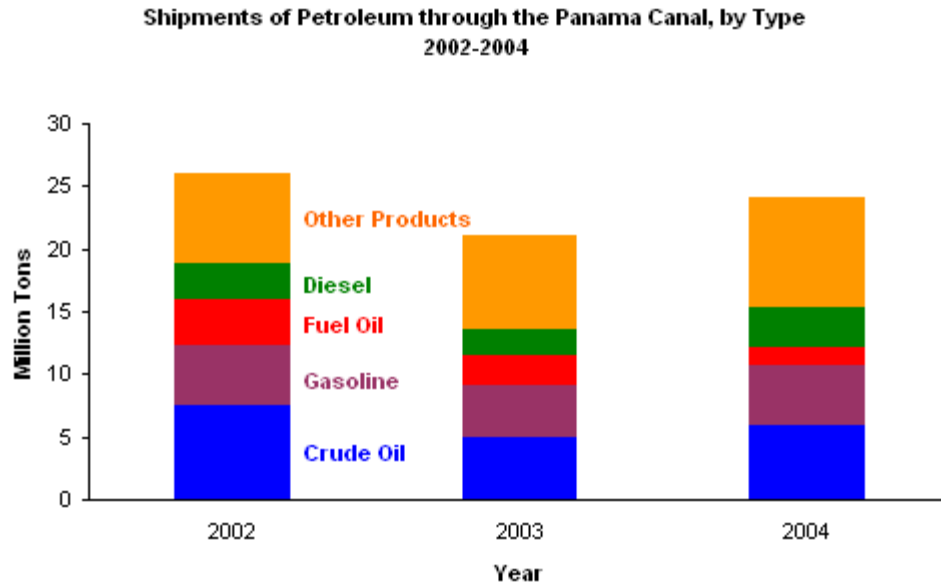
In August 2005, domestic oil company Belize Natural Energy reported that it had discovered a "modest" amount of oil reserves near the border with Guatemala. The company estimated that, at full production, the field could supply 50,000 bbl/d of light, sweet crude oil. This volume could easily meet the country's domestic needs and provide a sizable flow of export earnings.

Oil Transport Infrastructure

Panama Canal

In 2004, approximately 24.2 million tons of crude oil and petroleum products passed through the Panama Canal, with crude oil contributing about 28 percent of the total. About 70 percent of petroleum shipments go from the Atlantic to Pacific Ocean. In 2003, less than 1 percent of total U.S. crude oil imports and 3.5 percent of U.S. petroleum product imports passed through the

Panama Canal. Petroleum shipments represented 12 percent of total canal traffic in 2004, down from 16 percent in 2001.



The relevance of the Panama Canal to global trade, especially petroleum, is currently threatened by the increasing size of modern shipping vessels. Some oil tankers, such as ultra-large crude carriers (ULCC), can be nearly five times larger than the maximum capacity of the Panama Canal. The Panama Canal Authority (ACP), an autonomous body that administers the canal, has made small, incremental upgrades to the canal to facilitate larger ships. For instance, the ACP has floated an \$11 billion plan to pursue a significant expansion of the canal that would allow ships about twice as big as the current maximum. The Panamanian people must approve any such expansion of the canal, with a referendum scheduled for November 2005.

For more information about the Panama Canal, please view the [World Oil Transit Chokepoints](#) report.

Trans-Panama Pipeline

As mentioned above, many crude oil carriers are too large to fit through the Panama Canal. To remedy this situation, a joint venture of the Panamanian government and U.S.-based Northville Industries built the Trans-Panama Pipeline (TPP) in 1982. The original purpose of the TPP was to facilitate crude oil shipments from Alaska's North Slope to refineries in the Caribbean and U.S. Gulf Coast regions. The idea was for very large crude carriers (VLCC), ships too large to transit the canal, to offload Alaskan crude on the Pacific side, then move the crude oil to another VLCC waiting on the Atlantic side. However, the 800,000-bbl/d TPP was shut down in 1996, as oil companies began shipping Alaskan crude along alternative routes. In 2003, Canada's EnCana contracted the pipeline to ship crude oil from Ecuador to the Caribbean, but the company only utilized an estimated 15 percent of the system's capacity. In February 2005, Venezuelan President Hugo Chavez began talks with the Panamanian government on reversing the flow of the pipeline. This would allow for the possibility of Venezuelan crude oil exports to China by 2007.

Other Pipelines

Perenco operates a crude oil pipeline in Guatemala that links its production fields to the port of Santo Tomas. In January 2003, U.S.-based Phenix Pipeline and Oleoductos Premier de Nicaragua announced plans to build the 280-mile Central American Pipeline Project to transport petroleum products between the Pacific and Atlantic coasts. The company has submitted an environmental impact statement to the Nicaraguan government, but construction on the project has yet to begin.

Downstream

According to *OGJ*, only Nicaragua, El Salvador, and Costa Rica have operating crude oil refining capacity in Central America. The countries each operate a single facility, with total crude oil refining capacity for the three of 66,000 bbl/d. Panama and Guatemala both closed their refineries in 2002.

Refining Capacity in Central America

Country	Facility	Capacity (bbl/d)
Costa Rica	Limon	24,000
El Salvador	Acajutla	22,000
Nicaragua	Managua	20,000
<i>Source: Oil and Gas Journal</i>		

Petroleum Export Zones

In 1992, the Panamanian government created the Petroleum Export Zones (ZLP). Within these zones, all petroleum activities are exempt from all taxes and many regulations. Due to the large amount of shipping traffic in the area, the marine fuel industry has been the largest investor in the ZLP program. In 2001, vessels consumed some 52,000 bbl/d of residual bunker fuel from the ZLPs. Currently, there are eight ZLP areas in Panama, including the international airport outside Panama City and seven marine terminals.

Ethanol

In 2004, U.S.-based Cargill and Brazilian sugar trader Crystalsev announced that they would build a small ethanol plant in El Salvador. The plant would have an initial production capacity of 32,000 gallons per year, and it would export all of its production to the United States. According to industry sources, the companies hoped to take advantage of the Caribbean Basins Initiative (CBI), a trade agreement signed in 2000 that allows Caribbean and Central American countries to export up to 210,000 gallons per year of ethanol into the U.S. duty-free.

Natural Gas

Central America does not produce or consume any natural gas.

Currently, Central America neither produces nor consumes natural gas, although Mallon Resources of the United States holds a natural gas exploration concession in northeastern onshore Costa Rica. There are plans for Colombia to export at least 80 million cubic feet of natural gas per day (Mmcf/d) to Panama. A final feasibility study for a 120-mile, 200-Mmcf/d capacity pipeline from Cartagena, Colombia to Colon, Panama is underway. Once a sales agreement is reached, compressed natural gas will be shipped by barge to Panama until the pipeline is completed.

In December 1999, Guatemala and Mexico signed a protocol on construction of a natural gas pipeline connecting Jaltiplan de Morelos, in southern Mexico, to Puerto Quetzal in Guatemala. The pipeline eventually could be extended to the Honduran and Salvadoran borders, and possibly to Nicaragua and Costa Rica, as part of a wider Central America natural gas pipeline network. Since signing the protocol, progress on the project has been limited, but, in May 2004, Mexican government announced that it would like to revive the project. There has been some discussion by national leaders of unifying South American and Mexican natural gas pipeline networks one day, and the pipeline from Colombia to Panama would be the first step.

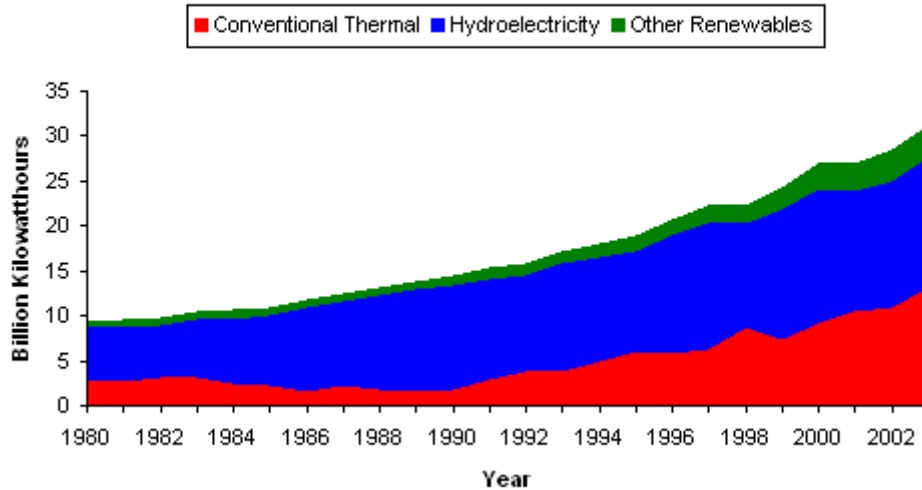
The small size of Central American markets, as well as recent increases in LNG prices compared to residual fuel oil prices, has tended to make importing LNG uneconomic. AES of the United States had proposed an LNG regasification facility/600-MW gas-fired plant in northeastern Honduras, but the project was abandoned in 2004.

Electricity

Central America generates the bulk of its electricity from hydropower.

Power consumption and generation in Central America have grown rapidly in recent years, spurred on by economic expansion and increased electrification of many rural areas. Between 1980 and 2003, the annual growth rate of power consumption in Central America was 5.5 percent. During the recent period of 1993-2003, Guatemala, the region's largest consumer and generator of electricity, experienced the fastest annual rate of electricity demand growth, at 8.1 percent, while Belize actually had a negative rate of growth (-2.1 percent). In 2003, the region consumed 29.7 billion kilowatthours (Bkwh), up 11.8 percent year-on-year.

**Central America's Electricity Generation, by Source
1980-2003**



Source: EIA

Hydropower has historically dominated electricity generation in Central America. However, conventional thermal capacity has become increasingly important. Facing energy shortages in the mid-to-late 1990s, Central American countries began privatizing their energy markets, allowing foreign investors to develop new power plants. Many of the new power plants were thermal as construction time is shorter in comparison to hydropower plants. As a result, thermal generation has been growing faster than hydropower generation. Between 1980 and 2003, installed electric generation capacity in Central America grew from 2.7 gigawatts (GW) to 7.4 GW.

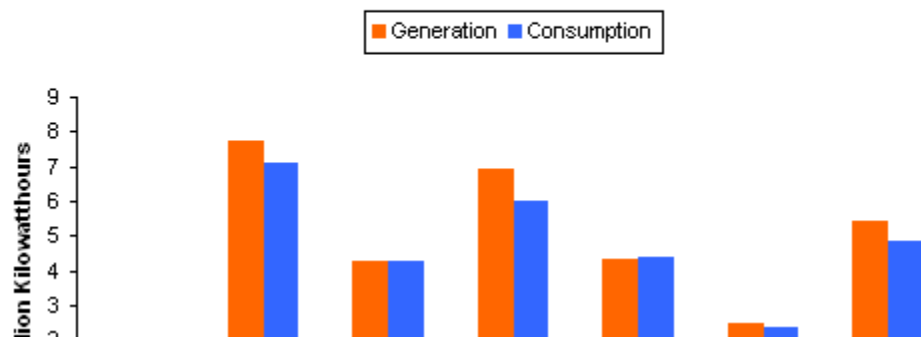
Belize

Belize expects to complete the 5.3-MW Chalillo hydropower project by the end of 2005. The project has been controversial, with Belizean environmental groups trying repeatedly to block completion of the facility. In November 2003, the country finalized an agreement with U.S.-based Hydro Maya Limited, which will build, own and operate a 2.8 MW hydropower plant. Also in 2003, BELCOGEN, a subsidiary of Belize Sugar Industries, proposed building a 13.5-MW plant, which would run off both oil and biogases.

El Salvador

El Salvador is Central America's largest producer of geothermal energy. In 2003, the country produced 0.97 Bkwh of geothermal electricity, representing approximately 21.9 percent of total electricity generated, according to government statistics. Thermal sources and hydropower accounted for 37.5 percent and 33.1 percent, respectively, of electricity generated in 2003. Power imports from Guatemala and Honduras accounted for the remainder. Currently, there are two geothermal facilities operating in El Salvador, the 95-MW Ahuachapan, and the 66-MW Berlin plant. Majority state-owned power company LaGeo, formerly Gesal, operates the two plants. LaGeo is currently expanding the two existing geothermal plants, as well as conducting a feasibility study for a third plant, Cuyanausul. The three projects should add 64 MW of installed electric generating capacity by mid-2006. Along with the two geothermal facilities, there were seven thermal plants and four hydropower plants in operation as of December 2003.

Central America's Electricity Generation and Consumption, by Country, 2003





Source: EIA

Honduras

Similar to the other Central American countries, Honduras has been facing surging power demand, as well as potential power shortages due to underperforming hydropower plants. In 1998, for example, an El Niño induced drought forced the Honduran government to declare an energy emergency. Since then, Honduran government has been trying to diversify its power supply, awarding concessions for the construction of thermal power plants. In October 2003, the Honduran government approved a contract with Luz y Fuerza de San Lorenzo (LUFUSSA) to build new power plant. LUFUSSA has completed the first phase of its 250-MW power plant, known as Pavana. The plant will run on heavy fuel oil. Other new developments include the expansion of Empresa Energía Renovable's (ENERSA) diesel-fired Choloma III power plant, which will have an installed electric generating capacity of 230 MW upon completion in mid-2005. AES discontinued a proposed 580-MW, gas-fired and integrated LNG import terminal in April 2003.

Nicaragua

Electrification of rural areas remains a major initiative of the Nicaraguan government. In May 2003, the World Bank approved a \$12 million loan to finance off-grid rural areas. According to the plan, some 16,000 households in isolated, rural communities in the Central and Atlantic regions of Nicaragua will have electric light and power for the first time. This is part of the country's National Rural Electrification Program, which aims to bring power to 70 percent of the country's rural areas by 2005 and to 90 percent by 2012.

Energy Integration (Plan Puebla-Panama)

In December 2001, the seven Central American countries signed the Plan Puebla-Panama, an effort to integrate their electricity markets and transmission grids. Supporters of the plan hope that the plan will increase security of supply, reduce the cost of electricity, and attract foreign investment. Plan Puebla-Panama calls for the creation of a regional wholesale electricity market, the Mercado Eléctrico Regional - MER; construction of the Sistema de Interconexión Eléctrica de los Países América Central (SIEPAC), an 1,100-mile transmission line linking Panama, Costa Rica, Honduras, Nicaragua, and El Salvador; and the construction of interconnectors connecting Mexico, Belize, and Guatemala with the SIEPAC.

The first phase of the plan is the completion of the SIEPAC, and the countries created an independent company, Empresa Propietaria de la Red (EPR), to achieve this goal. EPR announced that it would accept bids for construction of the SIEPAC in September 2005. On May 20, 2003, Mexico and Guatemala signed an accord on the construction of a 60-mile transmission line between the sub-stations of Tapachula, Mexico and Los Brillantes, Guatemala. The interconnector between the SIEPAC and the electricity system of Belize will involve the construction of a 120-mile transmission line between substations in Santa Elena, Guatemala and in Belize City.

Environment

Pollution from cars, industry, and power generation is a major problem in several areas of Central America.

Central America remains one of the world's poorest regions. This has encouraged massive exploitation of the area's natural resource base. Large areas of forest have been cut down and burned for firewood or used in the production of paper, while significant portions of land have been cleared for agricultural use. Oil exploration activities in certain parts of Guatemala, such as the northern Peten rainforest region, have encouraged road construction, accelerating the clearing of land and forested areas. These activities have led to large-scale erosion and soil loss, leaving many areas vulnerable to flash floods and mudslides as the natural landscape's ability to retain water is jeopardized.

Click [here](#) for the full Central America environmental report

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U.S. Government

[CIA World Factbook](#)

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Associations and Institutions

[Central American Bank for Economic Integration](#)

[Empresa Propietaria de la Red \(EPR\)](#)

[Secretaría de Integración Económica Centroamericana](#)

[Secretaría General del Sistema de la Integración Centroamericana](#)

Foreign Government Agencies

[Dirección General de Hidrocarburos](#)

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