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Ecuador

Ecuador is important in world energy markets, as one of Latin America's largest crude oil exporters. The country recently completed a second oil pipeline, which has doubled Ecuador's oil transport capacity.

Note: information contained in this report is the best available as of February 2004 and can change.



BACKGROUND

Ecuador's economy relies heavily on petroleum production. In 2002, Ecuador's oil sector accounted for about one-third of the government's revenue and 40% of export earnings. This reliance on oil exports makes Ecuador's economy vulnerable to fluctuations in world oil prices.

Higher oil prices in 2000 and in 2001 helped Ecuador recover from an economic crisis in 1999, with real gross domestic product (GDP) expanding 2.3% and 5.4%, respectively. The government's pegging of Ecuador's currency, the sucre, to the U.S. dollar in 2001 also contributed to the country's economic recovery. In 2002, GDP growth leveled off to 3.5% and then dropped to 1.7% in 2003. In 2004, Ecuador's economy is expected to rebound slightly, expanding 2.1%.

Recent high oil prices also have allowed state-owned oil company Petroecuador to record an estimated net profit of \$1.8 billion in 2003, despite continuing decline in production from state-operated fields. It remains unclear, however, whether Petroecuador will be able to reverse this trend, particularly since the government has cut the company's exploration and production budget in order to comply with country's International Monetary Fund (IMF) fiscal commitments.

Since being elected to office, President Gutierrez has embarked on a fiscal and structural reform program in order to improve economic growth in Ecuador, as well as to lower the country's external debt. In March 2003, the IMF approved a [\\$205 million Stand-By Agreement](#) with Ecuador. The agreed loan runs until March 2004 and gives Ecuador immediate access to \$41 million. The

agreement also obliges the government to meet requirements outlined in the Stand-By Agreement, such as liquidating closed banks, privatizing power companies and eliminating fuel subsidies, as well as getting the state-run-electricity sector to pay for fuel purchases from Petroecuador.

Ecuador also is a member of the [Andean Community](#), which seeks to integrate the political and economic infrastructures of Bolivia, Peru, Venezuela, Colombia and Ecuador. One objective of the Community is to integrate the energy sector. The Council of Andean Community Ministers of Energy, Electricity, Hydrocarbons and Mines is focusing on three key areas: 1) interconnecting electric and natural gas networks; 2) developing an Andean strategy for the sub-region's international positioning in the hydrocarbon trade and energy security; and 3) promoting energy services in the region. Ecuador also was a member of the Organization of Petroleum Exporting Countries (OPEC) from 1973 to 1992. The country reportedly left the group because it could not afford the membership dues and did not want its oil production subject to OPEC quotas as it tried to build its economy.

OIL

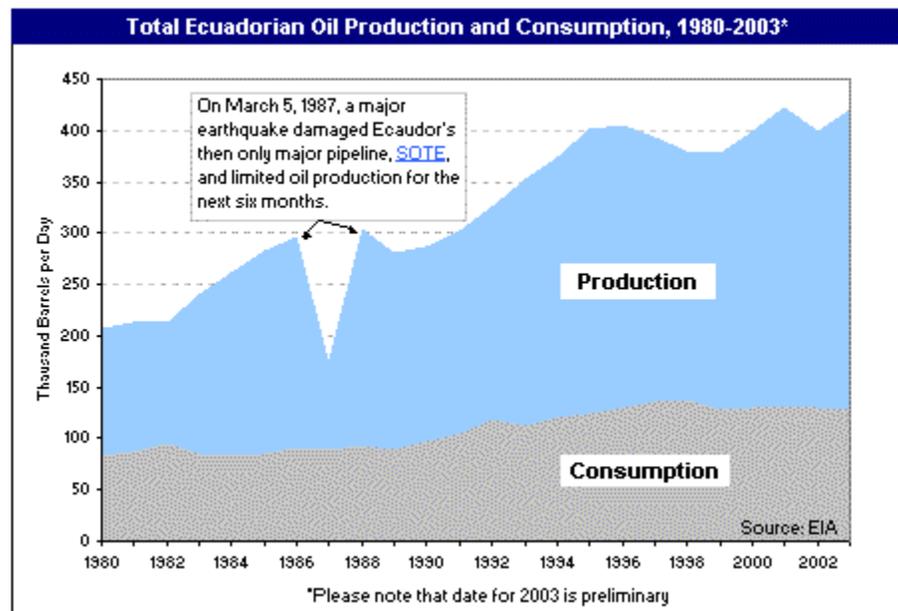
As of January 2004, Ecuador's proven crude oil reserves stood at 4.6 billion barrels. Most of Ecuador's oil reserves are located in five major oil fields -- Shushufindi, Sacha, Libertador, Lago Agrio, and Auca. These fields are located in the eastern Amazon region of Ecuador, known as the Oriente. Another significant portion of country's oil reserves has, however, remained virtually untapped in the [Ishpingo-Tiputini-Tambococha \(ITT\)](#) fields, with proven reserves of 730 million barrels of oil and possible reserves at double that amount.

Exploration and Production

Ecuador's total oil production (all liquids) reached 422,000 barrel per day (bbl/d) in 2001, its highest annual production output rate to date. In 2002, production dropped around 5%, to 400,000 bbl/d, mainly due to continued under investment, ageing fields, and lack of transportation capacity. Oil production, however, rebounded to 421,000 bbl/d in 2003. Much of this increase can be attributed to

the opening of a new, privately operated, heavy oil pipeline, [Oleoducto de Crudos Pesados \(OCP\)](#), in September 2003. The OCP has allowed private companies, no longer restrained by transportation capacity, to ramp up production and to proceed with the development of new fields. In December 2003, total oil production in Ecuador surpassed 500,000 bbl/d (see [table](#)).

While private companies have increased their production in recent years, state-owned oil company Petroecuador, traditionally the largest producer of crude oil in Ecuador, has seen its output decline. In 1999, for example, Petroecuador and private companies produced 256,200 bbl/d and 117,000 bbl/d of crude oil, respectively. In 2002, Petroecuador's crude oil production slipped to 222,100 bbl/d, while private companies climbed to 171,000 bbl/d. Petroecuador's crude oil production fell



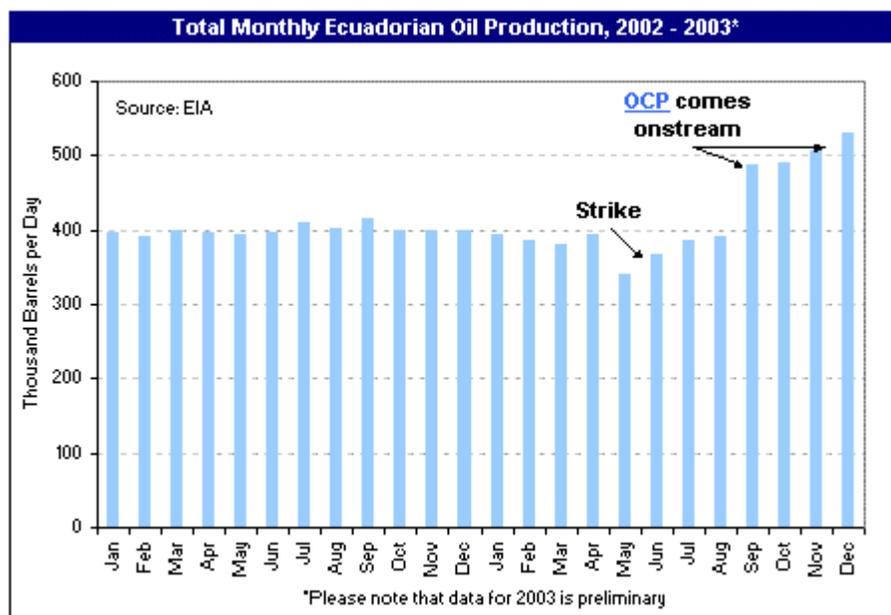
further in 2003, to an estimated 204,000 bbl/d, according to preliminary reports. If this trend continues, 2004 may mark the first time production from private companies exceeds that of the state company. Much of decline in Petroecuador's production has been attributed to insufficient investment in the company's operated fields. In April 2003, the government cut Petroecuador's 2003 budget by \$85.8 million in order to comply with the country's IMF commitments.

Foreign Investment

In April 2003, the government announced plans to increase production to 613,000 bbl/d by 2007. Critical to meeting this goal, however, remains the government's ability to attract foreign investment not only to invest in the country's oil sector but also to offset decline in fields operated by Petroecuador. A number of issues, such as reform of a new Hydrocarbon Law, the dispute over [Value Added Tax \(VAT\)](#) rebates, the pending [ChevronTexaco](#) case in Lago Agrio, and constantly changing oil policies, have reportedly made the private companies wary of increasing their investment in Ecuador other than in maintaining existing operations. Furthermore, [local opposition](#) from indigenous communities and environmental organizations, as well as from [union members](#) of Petroecuador, have hindered the government's ability to open areas to private investment.

Ninth Licensing Round

These issues resonated during the government's ninth bidding round that ended unsuccessful in April 2003. None of the six companies - ConocoPhillips, Repsol-YPF, Hunt Oil, Occidental Petroleum, Enap, and Eni - that initially had expressed interest in participating in the round made an offer on offshore blocks 39 and 40 and on onshore blocks 5 and 4. Companies reportedly were reluctant to expand investment in Ecuador until the government resolved the on-going VAT dispute with private companies. The government also had to drop blocks 20 and 29, which originally were to be included in the ninth round, due to strong local opposition.



Strike

Another example of the difficulty that the government has had in opening Ecuador's oil sector to private investment occurred in June 2003. After the government announced plans to open up the country's five largest fields (Auca, Libertador, Shushufindi, Cononaco, and Sacha) to private development through association contracts, state-oil workers went on strike, partially paralyzing Ecuador's oil sector and

forcing Petroecuador to declare a *force majeure* on its exports. Although the military was called in to protect key oil installations and to break up the strike, the Gutierrez administration was unsuccessful and finally dropped its joint venture scheme, ending the strike. The plan would have given the state and the private sector 40% and 60% stakes, respectively. The five fields produce the bulk of Petroecuador's crude oil at 210,000 bbl/d and hold 1.4 billion barrels of reserves. However, production from these fields has been declining, making private investment critical in maintaining output levels.

Ninth Licensing Round Revisited

In November 2003, the Ecuadorian government once again issued a solicitation for bids on four major oil fields. The fields included Auca (199 million barrels of remaining reserves), Shushufindi (570 million), Culebra-Yulebra (73 million), and Lago Agrio (62 million). The government offered companies a 35% stake in any incremental production from the fields on top of royalty fees which would range between 12.5% and 18.5%, depending on production output.

Even before the government announced the tender, six private oil companies – Repsol-YPF, Petrobras, Perenco, Occidental Petroleum, Eni and EnCana - sent a letter to President Gutierrez on October 20, 2003, explaining that the terms of the offer were unattractive. After initially receiving little interest in the tender, the government not only extended the bid deadline by three months to March 23, 2004 but also added incentives to the tender to make it more attractive. These included allowing companies to use without charge associated natural gas to generate electricity for their own use; reducing the rate companies pay to transport crude on the SOTE pipeline; and adding the Puma field, with 14 million barrels of reserves, to the tender. In addition, Petroecuador would assume all environmental responsibility for prior operations. As of December 2003, seven companies bought bid packages of one or more of four fields: China National Petroleum Company; Tecpetrol; Repsol-YPF; Perenco; Sinopec; Petrobras Energía; and a Russian consortium Access-Wilca.

Ishpingo, Tambococha and Tiputini (ITT)

Petroecuador also hopes to develop the Ishpingo, Tambococha and Tiputini (ITT) oilfields. Ecuador's Ministry of Energy and Mines announced in January 2004 that it will probably call for bids in March or April 2004 for the \$2.5-\$3.5 billion project. Because the oil contained in the fields has a low gravity, 14°-16° API, the winning bidder would be required to build a plant to upgrade the crude so that it could be transported. The winner would also have to build a 12.5-mile pipeline connecting the plant to neighboring block 31, from where it would eventually link to the SOTE pipeline for export. TotalFinaElf, ChevronTexaco, China National Petroleum Corporation, and Sinopec have reportedly shown interest in bidding on a potential contract.

Tax Dispute

Occidental Petroleum and EnCana, along with other oil companies, have sued the Ecuadorian government for failing to award a rebate after the government raised Value Added Tax rates in 2001. In January 2004, Ecuador's Supreme Court ruled that EnCana has a right to a partial rebate over tax rights with the government. The Court ordered Ecuador's Internal Revenue Service to return cash to EnCana to compensate for a government decision to raise the tax rate. In all, eleven private companies have filed lawsuits since August 2001, claiming that they are due an estimated \$200 million in value added tax rebates. As mentioned above, this dispute has slowed investment in Ecuador's oil sector, as companies involved in the lawsuits have held off on expanding investment until the issue is resolved.

Local Opposition

Ecuador has experienced recurring problems between oil producers and the government on one side, and indigenous peoples on the other. Indigenous communities populate most of the oil-rich Oriente area of Ecuador, and have staged numerous demonstrations against the Ecuadorian government and oil production policies. Many indigenous communities fear that intrusion by oil companies will destroy their traditional way of life and damage the environment. However, some communities have come to accept oil companies as they support social programs and bring jobs to economically depressed areas.

ChevronTexaco

In October 2003, ChevronTexaco appeared in Lago Agrio to face trial for damages caused by drilling operations that took place from 1972 to 1990. The plaintiffs claim that the company dumped 18.5 billion gallons of toxic wastewater and crude during its operations. In 1998, Texaco spent \$40 million on clean up and donations to local municipalities, for which it negotiated a release from further liability for environmental damage. Local indigenous groups have also stopped U.S.-based Burlington Resources and Argentina's Compañía General de Combustibles (CGC) from exploring in blocks 23 and 24. Neither company has drilled a single well for over three years. In January 2004, President Gutierrez and Energy Minister Arboleda met with indigenous leaders and told them that the companies would be able to resume operations in February 2004.

Oil Transportation

Oleoducto de Crudos Pesados (OCP)

Ecuador's oil pipeline infrastructure had been one of the major constraints to increasing the country's oil production until a new pipeline, [Oleoducto de Crudos Pesados \(OCP\)](#), began operations in September 2003. The 450,000-bbl/d heavy oil pipeline doubled Ecuador's oil transport capacity to 850,000 bbl/d. Since OCP came online, oil production in Ecuador has increased in the last two quarters of 2003, as private companies have increased production in order to fulfill transport quotas (see [table](#)). It remains unclear, however, whether the pipeline will reach its transportation capacity, particularly after Petroecuador decided in September 2003 not to use the line as previously planned, relying instead on the state-owned SOTE pipeline to transport its oil. As mentioned above, private companies remain reluctant to expand investment in Ecuador's oil sector until the tax-dispute is resolved.

The OCP pipeline begins at the Oriente Basin in the eastern Ecuadorian Amazon rainforest region and runs across the Andes Mountains, to refineries and export terminals, on the Pacific Ocean. For most of its length, OCP runs parallel to SOTE, except for a 100-mile stretch near Quito, where OCP takes a different route. The pipeline was built to transport a new heavy crude variety called Napo, with gravity of 18.8° to 19.2° API. Canada's EnCana, with a 36.3% interest, heads a six-company consortium that controls and operates the OCP. Other partners include Repsol-YPF, Petrobras Energía, Occidental Petroleum, Perenco (from Kerr-McGee in September 2002), and Eni, through its subsidiary - Agip Oil BV Ecuador.

The OCP delivers a new crude from the Oriente Basin, called "Napo". The crude is 19.2° API, with a 2% sulfur content. Much of the Napo supply will be heading to markets in the Caribbean and in the United States via the Trans-Panama Pipeline. EnCana concluded a deal with Panama government and Taurus Petroleum to ship Ecuadorian crude through the pipeline and use storage facilities.

Sistema Oleoducto Trans-Ecuatoriano (SOTE)

The other major pipeline, [Sistema Oleoducto Trans-Ecuatoriano \(SOTE\)](#), extends about 300 miles from the Lago Agrio area in the Oriente to the Balao terminal near the port city of Esmeraldas. The pipeline was built in the early 1970s and has been expanded several times since, with capacity reaching 390,000 bbl/d following work completed in June 2000. The SOTE pipeline transports a variety of crude gravities, reflecting the Oriente's wide range of crude production. Ecuador also has 25-mile pipeline which connects to Colombia's Transandino pipeline. The connection gives Ecuador access to Colombia's port of Tumaco.

Refining

Ecuador has a total refining capacity of 176,000 bbl/d. Petroindustrial, the refining subsidiary of Petroecuador, operates the country's three refineries: Esmeraldas (110,000 bbl/d) located in the province of Esmeraldas; Amazonas (20,000 bbl/d) located in the Shushufindi industrial complex in

the province of Sucumbios; and La Libertad (46,000 bbl/d) on the Santa Elena Peninsula in the province of Guayas. In January 2004, the Ecuadorian government announced that it plans to call for bids in the first quarter of 2004 for a \$350 million contract to upgrade the country's three ageing refineries. Currently, U.S -based Universal Oil Products, under a contract from Petroindustrial, is studying the refineries to determine whether their capacity can be improved. Petroecuador is also considering building a new \$1.1 billion refinery, with the ability to process 110,000 bbl/d of heavy crude.

NATURAL GAS

Ecuador has relatively small proven natural gas reserves, 345 billion cubic feet (Bcf) as of January 2004. To date there has been no significant development of these reserves, except for U.S.-based Noble Energy's natural gas-to-power project. In 1996, EDC Ecuador Ltd, an affiliate of Noble Energy, signed an agreement with Petroecuador to tap the estimated 177 billion cubic feet (Bcf) of recoverable natural gas reserves of the Amistad field in block 3 of the Gulf of Guayaquil. The company also built a 40-mile pipeline, connecting to the 130 megawatt (MW) Machala natural gas fired power plant located onshore. The power plant began operations in September 2002. Noble Energy, through its subsidiaries Samedan Oil, EDC Ecuador Ltd. and Machala Power Cia., Ltda., has a 100 percent ownership interest in the fully integrated gas-to-power project.

ELECTRICITY

In 2001, Ecuador had an installed electric power capacity of 3.5 gigawatts. During the same year, the country produced 10.4 billion kilowatthours of electricity (Bkwh) while consuming 10 Bkwh. About 65% of Ecuador's electricity generation in 2001 was hydropower, with thermal sources accounting for the remainder. In 2002, roughly 43% of the country's electricity came from one hydroelectric plant, Hidropaute, according to Ecuador's electricity regulator, Consejo Nacional de Eletricidad (CONELEC). This high reliance on hydropower, especially on one large facility, makes the country vulnerable to disruptions, particularly during the country's dry season (October-March). This vulnerability was punctuated in October 2003 when President Lucio Gutierrez declared a state of emergency in the electricity sector in order to avert possible energy supply shortages during the dry season.

New Generation

In November 2003, Brazil's Odebrecht began construction of the 230-MW San Francisco hydroelectric power plant in the Tungurahua. The new facility will utilize waters released from Agoyan hydropower plant located upstream to generate electricity. The water will be funneled downhill through a 7.2-mile conduit, which will connect to turbines. The \$302 million project is expected to be operational in 2007.

In May 2003, CONELEC awarded a 30-year concession to Hidropaute S.A. to build the 180-MW Mazar hydroelectric plant. The plant will be located near the Hidropaute facility. Originally, CONELEC awarded the concession to a consortium led by Union Fenosa but later revoked it, reportedly due to irregularities in the contract.

The Machala natural gas-fired plant began operation in September 2002. The plant's capacity is expected to expand from its current 130 MW to 207 MW by mid-2004 and to 312 MW by mid-2005. The plant, Ecuador's first natural gas-fired commercial generating facility, is expected to help the country avoid power outages during dry periods, when hydroelectric power output is low.

Regional Integration

Ecuador has also been in the process of integrating its power grid with those of Colombia and Peru. The three countries have signed two preliminary agreements to this end in September 2001 and

April 2002. These agreements are a part of a larger movement by the Andean Community to create a common electricity market. Since signing the agreements, Ecuador has established a new interconnector with both Colombia and Peru. The 131-mile Ecuador-Colombia transmission line began operation in January 2003. The Ecuador-Peru transmission line is still under construction but is projected to come online in September 2004. This line initially will only allow Peru to export electricity to Ecuador but the project will eventually permit both countries to exchange electricity. These new connections will most likely ameliorate electricity shortages that Ecuador can experience during its dry season.

Restructuring

In 1996, the government began a process of restructuring the country's electricity sector, by first creating a regulatory agency, Consejo Nacional de Electricidad (CONELEC). In 1999, the government unbundled the state utility, Instituto Ecuatoriano de Electrificación (INECEL), which had controlled generation, transmission, and distribution of electricity in Ecuador. INECEL was split into 6 generation companies, one transmission company (Transelectric S.A.), and 18 distribution companies. The government's Fondo de Solidaridad, the government holding company for state-owned companies, has a 100% share in all divested [generation companies](#) except Elecaastro (53.44%) and in [Transelectric](#), as well as holds shares in the [distribution companies](#).

The government's attempts to privatize its electricity assets have repeatedly encountered resistance from labor unions and provincial governments. The government's most recent setback occurred in May 2002, when CONELEC canceled the sale of Emelec, the Guayaquil city electricity distributor. In July 2003, Ecuador's government turned over the assets of Emelec to the city of Guayaquil, from which a new company was created, Distriguayaquil. In November 2003, three companies, Spanish companies Union Fenosa and Endesa, and the U.S.-based AES, had shown interest in taking over Distriguayaquil.

Between 2001 and 2002 former President Noboa repeatedly tried to sell stakes in the country's distribution companies. In March 2002, the former President had to suspend the auction of 10 state-owned electric power distributors after Ecuador's Congress passed a resolution rejecting the privatization of the country's power sector, and called on the government to heed a Constitutional Court ruling that had voided a measure allowing the sale of public assets. Although President Noboa had withdrawn 10 power companies (out of 17 total) from the auction scheduled for April 12, 2002, opponents of privatization - including indigenous organizations, unions, local governments, and others - continued to demand that the entire plan be scrapped.

New Privatization Efforts

In November 2003, the Solidarity Fund announced that it had sold six sets of bid rules for a three-year contract to manage 13 of the country's state-owned distributors: Bolivar, Cotopaxi, El Oro, Emelgur, Emelnorte, Esmeraldas, Los Rios, Manabi, Milagro, Santo Domingo, Santa Elena, Regional del Sur, and Sucumbios. The companies that purchased bid rules included Norberto Odebrecht (Brazil), GPU-Emdersa (Argentina), Soluziona (Spain), ESB International (Ireland), Conafe (Chile) and a consortium headed by U.S.-based company Reliance. The Solidarity Fund is expected to receive bids on February 27, 2004. The government hopes that allowing companies to manage the country's state-owned power distributors will generate investment in the sector, as well as reconstitute these companies' solvency, which continued to lose money in 2003, according to the Solidarity Fund.

COUNTRY OVERVIEW

President: Lucio Gutierrez Borbua (since January 2003)

Independence: May 24, 1822 (from Spain)

Population (2003E): 13.4 million

Location/Size:Northwestern South America, 105,037 sq. mi., slightly smaller than Nevada

Major Cities: Quito (capital), Guayaquil, Cuenca, Machala, Portoviejo, Manta, Ambato, Santo Domingo, Esmeraldas

Languages: Spanish (official), Quechua and other Indian languages

Ethnic Groups: Mestizo (mixed Spanish and Indian, 55%), Amerindian (25%), Spanish (10%), Black (10%)

Religion: Roman Catholic (95%)

ECONOMIC OVERVIEW

Minister of Economy and Finance: Mauricio Pozo

Currency: Sucre/U.S. Dollar

Official Exchange Rate (2/04/04): \$1 = 25,000 sucres (pegged to the U.S. dollar)

Gross Domestic Product (GDP, 2003E): \$26 billion

Real GDP Growth Rate (2003E): 1.5% **(2004F):** 2.1%

Inflation Rate (CPI, 2003E): 7.9% **(2004F):** 6.4%

Unemployment Rate (2003E): around 10%

Merchandise Exports (2003E): \$5.8 billion

Merchandise Imports (2003E): \$6.5 billion

Current Account Deficit (2003E): -\$508 million (-2.0% of GDP)

Major Trading Partners: United States, Colombia, Peru, Venezuela, Chile, Italy, Brazil

Major Export Products (2002E): Crude oil (40%), bananas (19%), shrimp (5%)

Major Import Products (2002E): Raw materials (37%), capital goods (33%), consumer goods (29%)

Total External Debt (2003E): \$12.9 billion

ENERGY OVERVIEW

Minister of Energy and Mines: Carlos Arboleda

Proven Oil Reserves (1/1/04E): 4.6 billion barrels

Oil Production (2003E): 421,000 barrels per day (bbl/d), of which 411,000 bbl/d was crude oil

Oil Consumption (2003E): 128,000 bbl/d

Net Oil Exports (2003E): 293,000 bbl/d

Crude Oil Refining Capacity (1/1/04E): 176,000 bbl/d

Natural Gas Reserves (1/1/04E): 345 billion cubic feet (Bcf)

Natural Gas Production (2001E): 6 Bcf

Natural Gas Consumption (2001E): 6 Bcf

Recoverable Coal Reserves (2001E): 26 million short tons

Coal Production and Consumption (2001E): None

Electric Generation Capacity (2001E): 3.5 gigawatts

Electricity Generation (2001E): 10.7 billion kilowatthours (Bkwh) (65% hydro and 35% thermal)

Electricity Consumption (2001E): 10.0 Bkwh

ENVIRONMENTAL OVERVIEW

Minister of Environment: Cesar Alfonso Narvaez

Total Energy Consumption (2001E): 0.34 quadrillion Btu (0.1% of world total energy consumption)

Energy-Related Carbon Emissions (2001E): 5.4 million metric tons of carbon (0.1% of world carbon emissions)

Per Capita Energy Consumption (2001E): 26.3 million Btu (vs. U.S. value of 341.1 million Btu)

Per Capita Carbon Emissions (2001E): 0.4 metric tons of carbon (vs. U.S. value of 5.5 metric

tons of carbon)

Energy Intensity (2001E): 9,190 Btu/ \$1995 (vs. U.S. value of 10,810 Btu/ \$1995)**

Carbon Intensity (2001E): 0.15 metric tons of carbon/thousand \$1995 (vs. U.S. value of 0.17 metric tons/thousand \$1995)**

Fuel Share of Energy Consumption (2001E): Oil (76.3%), Hydroelectricity (21.5%), Natural Gas (2.2%), Coal (0.0%)

Fuel Share of Carbon Emissions (2001E): Oil (88.9%), Natural Gas (11.2%), Coal (0.0%)

Status in Climate Change Negotiations: Non-Annex I country under the United Nations Framework Convention on Climate Change (ratified February 23rd, 1993). Ratified the Kyoto Protocol on January 13th, 2000).

Major Environmental Issues: Deforestation; soil erosion; desertification; water pollution; pollution from oil production wastes.

Major International Environmental Agreements: A party to the Antarctic-Environmental Protocol, Antarctic Treaty, Biodiversity, Climate Change, Desertification, Endangered Species, Hazardous Wastes, Nuclear Test Ban, Ozone Layer Protection, Ship Pollution, Tropical Timber 83, Tropical Timber 94, Wetlands and Whaling.

* 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.

OIL AND GAS INDUSTRIES

Organization: Petroecuador, formerly Corporación Estatal Petrolera Ecuatoriana (CEPE), serves as the holding company for all state-owned petroleum operations.

Foreign Oil Company Involvement: Burlington Resources, China National Petroleum Corporation, Compania General de Combustibles, EnCana, Enap, Eni, Occidental Petroleum, Perenco; Petrobras Energía, Repsol-YPF, Sinopec, Tecpetrol.

Major Oil Fields: Shushufindi, Sacha, Libertador, Cononaco, Cuyabeno, Lago Agrio, and Auca. Smaller fields include Anaconda, Culebra, and Yulebra.

Major Refineries (capacity, bbl/d, 1/1/04E): Esmeraldas (110,000), La Libertad (46,000), Shushufindi (20,000).

Major Pipelines (capacity, bbl/d, 2004E): Oleoducto de Crudos Pesados (OCP) (450,000, with a maximum capacity of 528,000), Sistema Oleoducto Trans-Ecuatoriano (SOTE) (390,000), Transandean to Colombia (45,000).

Major Terminals: Guayaquil, Esmeraldas/Balao, La Libertad, Tumaco, Colombia (via Trans-Andean pipeline).

Sources for this report include: Andean Community; Business News Americas; China Energy Report Weekly; CIA World Factbook; Dow Jones News Wire Service; Economist; Ecuador Ministry of Energy and Mines; EFE News Service; EnCana; Financial Times; Global Power Report; Economist Intelligence Unit (EIU) ViewsWire; Eni; Financial Times; Global Insight; International Energy Agency; International Market Insight Reports; International Monetary Fund; Latin American Energy Alert; Latin American Power Watch; Occidental Petroleum; Odebrecht; Oil and Gas Journal; Oil Daily; Perenco; Petrobras Energía; Petroecuador; Petroleum Economist; Petroleum Intelligence Weekly; Platt's Oilgram News; Repsol-YPF; Reuters; Security and Exchanges Commission; Stratfor; U.S. Energy Information Administration; World Bank; World Markets Analysis.

LINKS

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Links to other U.S. Government sites:

[CIA World Factbook - Ecuador](#)
[U.S. Department of Energy's Office of Fossil Energy's International section - Ecuador](#)
[U.S. Embassy in Quito, Ecuador](#)
[U.S. State Department Background Notes on Ecuador](#)
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[Andean Community \(Energy Integration\)](#)
[ARPEL, Regional Association of Oil and Natural Gas Companies in Latin America and the Caribbean](#)
[The Latin American Integration Association \(ALADI\)](#)

Electric Generation, Distribution and Transmission

[Compañía Nacional Transmisión Eléctrica \(Transelectric S.A.\)](#)
[Consejo Nacional de Electricidad \(CONELEC\)](#)
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General Information

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