

COUNTRY ANALYSIS BRIEFS

Colombia

Last Updated: June 2011

Background

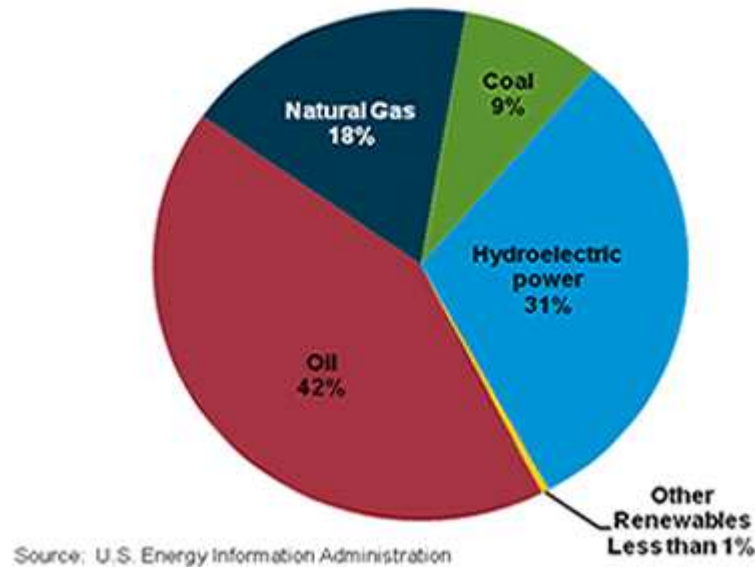
Colombia is the United States' largest source of coal imports and tenth largest source of oil imports.

Colombia has seen a dramatic increase in oil production in recent years following a period of steady decline. The Colombian government has enacted a series of regulatory reforms to make the sector more attractive to foreign investors. In addition, it has implemented a partial privatization of state oil company Ecopetrol in an attempt to revive its upstream oil industry. The security situation in the country also has improved over the last decade, with fewer attacks against oil and natural gas infrastructure in recent years. Expanded oil production will require further investment in transport infrastructure and refining capacity.



In 2008, Colombia consumed 1.4 quadrillion Btus of total energy. Oil constituted the largest part of this amount, followed by hydroelectricity. Colombia is also a large coal producer. The country relies upon hydropower for the bulk of its electricity needs, so it is able to export most of the coal that it produces. Natural gas consumption in Colombia has also risen over the last decade.

Total Energy Consumption in Colombia, by Type (2008)

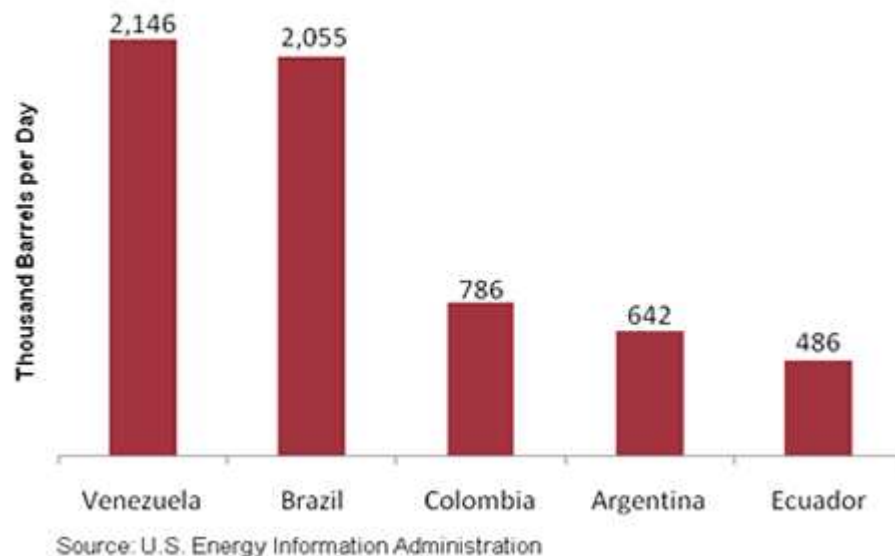


Oil

Colombia's oil production has increased in the past few years, following a period of steep decline.

According to *Oil and Gas Journal (O&GJ)*, Colombia had 1.9 billion barrels of proven crude oil reserves in 2011, the fifth-largest in South America. These reserves are expected to increase with the exploration of several new blocks that were auctioned in 2010. The country produced an estimated 800,000 barrels per day (bbl/d) of oil in 2010, up from 686,000 bbl/d in 2009. This trend has continued in 2011. Most recently at the time of writing, the National Hydrocarbons Agency (ANH) reported that Colombian production reached 923,000 barrels per day in May 2011. Colombia consumed 296,000 bbl/d in 2010, allowing the country to export most its oil production.

Top 5 South American Crude Oil Producers, 2010



Sector Organization

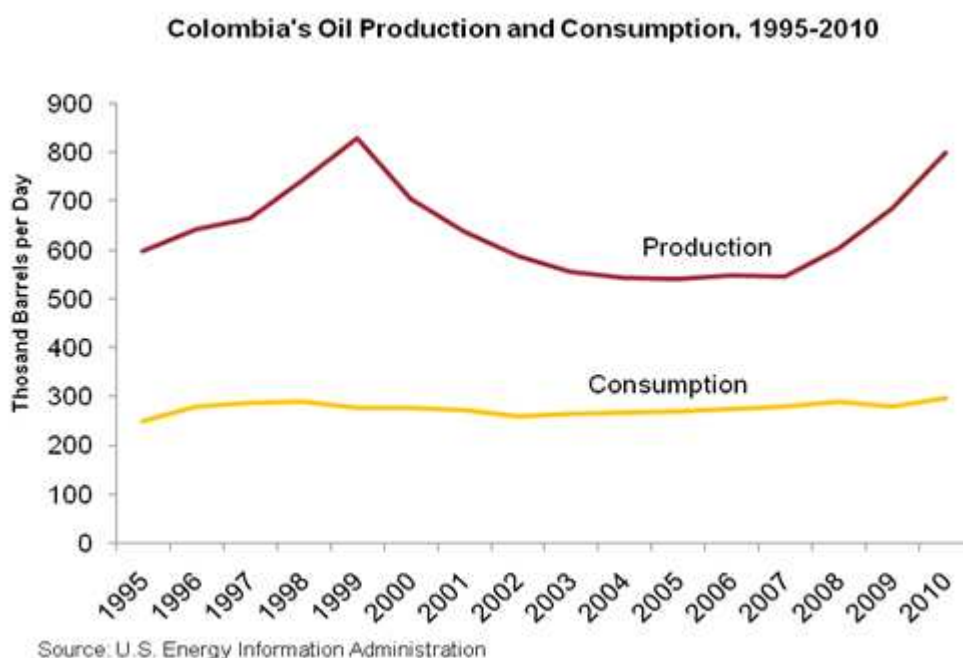
Since 1999, Colombia's government has taken measures to make the investment climate more attractive to foreign oil companies. Upstream sector initiatives include allowing foreign oil companies to own 100 percent stakes in oil ventures and compete with Ecopetrol, the national oil

company; the establishment of a lower, sliding-scale royalty rate on oil projects; and longer exploration licenses. The government plans to sell shares of Ecopetrol to private investors, reducing their share to roughly to 80 percent. The reforms have sparked a renewed interest in Colombia's upstream sector, with record levels of exploratory and development drilling occurring in 2010. According to Colombian central bank, the oil sector received \$2.86 billion in foreign direct investment (FDI) in 2010, which partially offset FDI losses in the mining sector.

In June 2010, Colombia conducted its latest oil sector bidding round, which included 228 exploratory blocks. The round featured both known hydrocarbon-rich areas as well as frontier regions, such as offshore blocks in the Caribbean Sea and the Pacific Ocean. However, the ANH only awarded 76 total licenses in well-established areas in the round.

Exploration and Production

Ecopetrol is the largest oil producer in Colombia. Seventy international oil companies also participate in the upstream sector. The bulk of Colombia's crude oil production occurs in the Andes foothills and the eastern Amazonian jungles. Meta department, in central Colombia, is also becoming an important production area, predominately of heavy crude oil. The largest field in the country is the Rubiales field, located in Meta department. Low levels of production began at Rubiales in the late 1980s, but increasing investment and the completion of a new pipeline have allowed production rates to rise in recent years. Production at Rubiales exceeded 170,000 bbl/d in 2011, up from only 12,000 bbl/d in June 2007. According to the Colombian government, the field could contain 500 million barrels of total reserves. The crude oil produced at the Rubiales field is very heavy, so a diluent (such as naphtha) must be added to it in order for the crude oil to flow through pipelines.



Other large oil fields include Cano Limon, Castilla, and Cupiagua. In recent months, the Cusiana/Cupaigua complex has experienced a comeback to over 100,000 bbl/d after years of steep declines in production to less than 50,000 bbl/d. Colombia's current oil production is somewhat more diffuse, with a large number of relatively small oil fields. According to industry analysts, the country is relatively under-appraised, with large parts of the country unexplored and with many of the geological features of its oil-rich neighbor Venezuela. Only eight of the country's current 18 sedimentary basins are producing oil and/or gas.

Prior to 2008, Colombia's oil production had remained largely flat for many years. This followed a period of steady decline that started in 1999, when Colombia's oil production peaked at 830,000 bbl/d. The principle cause of the fall in oil production was natural declines at existing oil fields and a lack of sizable new reserve discoveries. However, a combination of changes to the regulatory framework and an improved security situation has contributed to increasing investment in the country. The improvement in Colombia's security situation has also been a significant contributor

to the renewed interest by international oil companies. Pipelines and other energy infrastructure are still the targets of attacks by guerrillas, but the number and severity of these attacks is much lower than in the past. According to the Colombian government, there were about 31 attacks against pipelines in 2010, compared with hundreds of such incidents that occurred per year in the early 2000s.

As a result of these improvements, Colombia has reversed the decline in its oil production and recently experienced rapid growth. EIA forecasts that Colombia's oil production will increase in the next two years: in the June 2011 edition of the [Short Term Energy Outlook](#), EIA projects that Colombian oil production to rise to 910,000 bbl/d in 2011 and to surpass the one million barrel per day mark during the third quarter of 2012.

[Oil Exports](#)

The United States is the largest destination for Colombia's oil exports. In 2010, Colombia exported 365,000 bbl/d of crude oil and refined products to the United States. Most of these exports flowed into [PADD 3](#) (Gulf Coast, 79 percent), followed by PADD 5 (West Coast, 13 percent) and PADD 1 (East Coast, 8 percent). China was Colombia's second-largest oil export destination in 2010, followed by Japan. China has recently expressed interest in financing new infrastructure projects in Colombia to facilitate the transport of oil to the Pacific coast for export.

[Pipelines](#)

Colombia has six major oil pipelines, four of which connect production fields to the Caribbean export terminal at Covenas. These include the 500-mile Orensa pipeline, which has the capacity to transport 615,000 bbl/d from the Cusiana/Cupiagua area; the 460-mile Cano Limon pipeline; and the smaller Alto Magdalena and Colombia Oil pipelines. The Llanos Orientales came online in late 2009, which links the Rubiales field to the Orensa pipeline. The system will eventually have a capacity of 260,000-bbl/d. The sixth pipeline, the TransAndino, transports crude from Colombia's Orito field in the Putumayo basin to Colombia's Pacific port at Tumaco; TransAndino can also carry crude oil produced in Ecuador. In November 2010 Ecopetrol announced that it is partnering with an international consortium to develop the Oleoducto Bicentenario pipeline. The \$4.2 billion project will have a capacity of 450,000 bbl/d and is scheduled for completion in December 2012.

[Downstream](#)

According to *OGJ*, Colombia had 290,850 bbl/d of crude oil refining capacity in 2010. The country has five major refineries, all owned by Ecopetrol. The 205,000 bbl/d Barrancabermeja-Santander facility and the 80,000 bbl/d Cartagena refinery represent most the country's capacity. Ecopetrol assumed complete ownership of the Cartagena plant after purchasing the stake formerly held by Glencore.

Although Colombia is a net oil exporter, it must import some refined products especially diesel fuel, as domestic demand outstrips refining capacity. As a result, Ecopetrol has begun efforts to expand refining capacity in the country. The company approved a \$3.8-billion expansion of the Cartagena refinery in late 2009, which will increase capacity to 165,000 bbl/d and improve the quality of domestically produced refined products. Ecopetrol is also embarking on an expansion plan at the Barrancabermeja plant, which would increase its capacity to 300,000 bbl/d and improve the refinery's ability to process heavier crude oils.

[Natural Gas](#)

Colombia is self-sufficient in natural gas and recently began exporting to neighboring Venezuela.

According to *OGJ*, Colombia had proven natural gas reserves of 4 trillion cubic feet (Tcf) in 2010. The country produced 370 billion cubic feet (Bcf) of dry natural gas in 2009, while consuming 307 Bcf. A large portion of the country's gross natural gas production is re-injected to aid in enhanced oil recovery. The bulk of Colombia's natural gas reserves are located in the Llanos basin, although the Guajira basin accounts for the majority of current production. Similar to the oil sector, natural gas production has risen substantially in the last few years, owing to greater investment at existing fields, rising domestic consumption, and new export opportunities.

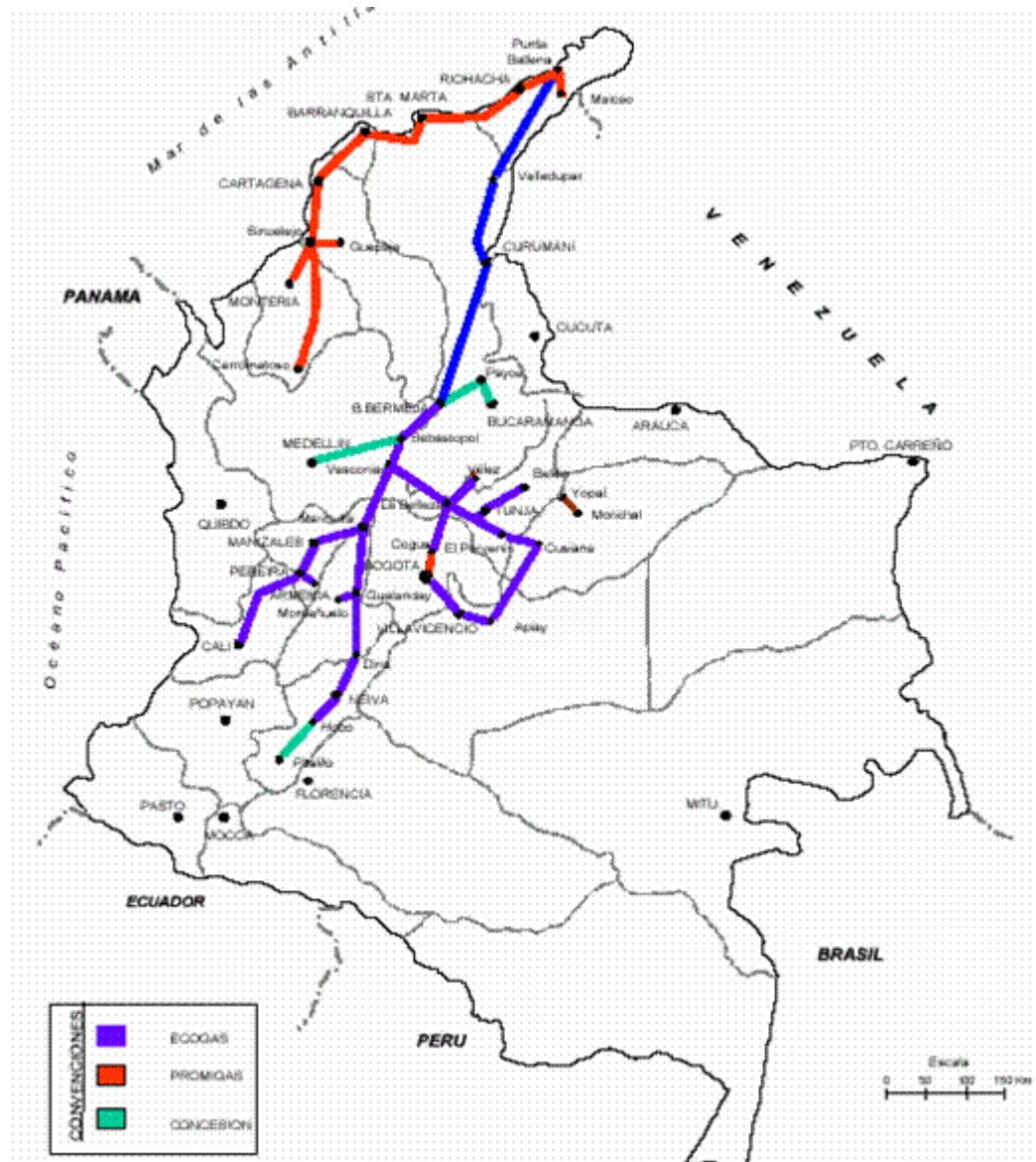
[Exploration and Production](#)

Chevron is the largest natural gas producer in the country. The company operates the offshore Chuchupa field in the Guajira basin, the largest non-associated natural gas field in the country. The company also operates the nearby onshore Ballena and Riohacha fields. The two biggest natural gas fields in the country, Cupiagua and Cusiana fields in the Llanos basin, were acquired from BP by Ecopetrol and Talisman Energy in 2010. Almost all of the gas produced from these fields is re-injected. The Colombian government published a decree in March 2011 outlining a plan to increase domestic natural gas production, including production from unconventional gas

fields. Policies aimed at expanding domestic natural gas consumption and exports, combined with increased demand from the power sector due to weather-related hydroelectricity shortages, have made expanding natural gas production a priority for the government.

Pipelines

There are some 2,000 miles of natural gas pipelines in Colombia. Empresa Colombiana de Gas (Ecogás) operates most of Colombia's natural gas pipeline network. The three main lines include the Ballena-Barrancabermeja, linking Chevron's Ballena field on the northeast coast to Barrancabermeja 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.



Export Pipeline

In early 2008, the Antonio Ricaurte pipeline came online, linking northeastern Colombia with Venezuela. Initially, the pipeline allows Colombia to export natural gas from the Punta Ballenas area to western Venezuela. Current plans call for the flow of the pipeline to then be reversed in 2012, with Venezuela exporting 140 million cubic feet per day (MMcf/d) of natural gas to Colombia. While initial contracted volumes for export from Colombia ranged from 80-150 MMcf/d, actual exports to Venezuela have often exceeded these levels due to rising demand in Venezuela for natural gas for power generation and re-injection.

Coal Bed Methane

Coal bed methane (CBM) is a gaseous hydrocarbon that occurs along with coal reserves. This unconventional source of natural gas is transported and used in similar ways. Drummond has stated that its Colombian mines could contain up to 2.2 Tcf of CBM, and the company has signed contracts with Ecopetrol to extract CBM from both the La Loma and El Descanso mines. CBM has the potential to dramatically increase Colombia's proven natural gas reserves, facilitate greater domestic production, and potentially allow additional exports to neighboring countries.

Coal

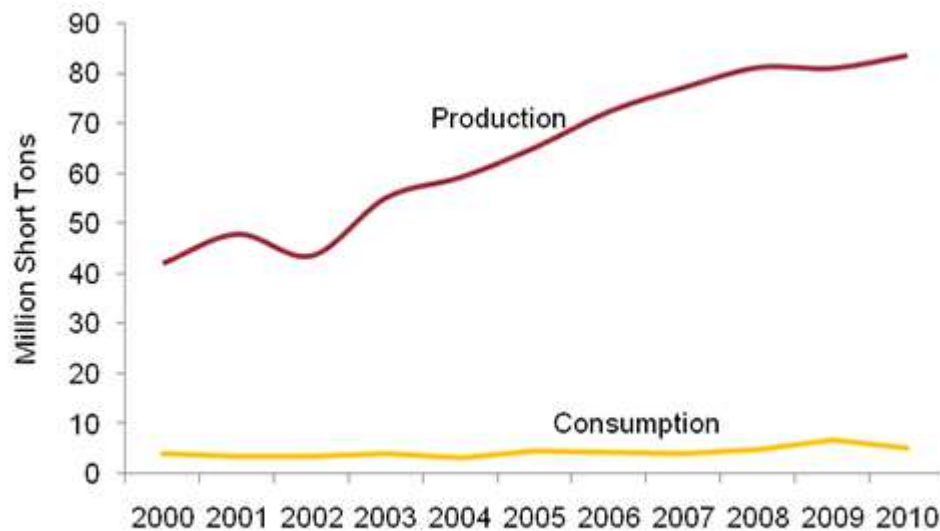
Colombia is one of the world's largest coal exporters.

According to the World Energy Council, Colombia had 7,436 million short tons (MMst) of recoverable (mostly bituminous) coal reserves in 2008, the largest in South America. These deposits are 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. Colombia produced 80.87 MMst of coal in 2009, while only consuming 6.69 MMst. The country exports most of its production – in 2009 it was the fourth-largest coal exporter in the world.

Production

Colombian coal production, which is exclusively carried out by private companies, has nearly doubled since 2000. Preliminary estimates of 2010 production place Colombia's coal output at 82.78 MMst – well short of the country's goal of 90 MMst, but still a record for national production. Massive rains caused by the el Niño phenomenon in the latter part of 2010, which disrupted transportation networks and open-air mine operations, contributed to this shortfall. The Colombian government aspires to double production by 2019.

Colombia's Coal Production and Consumption, 2000-2010



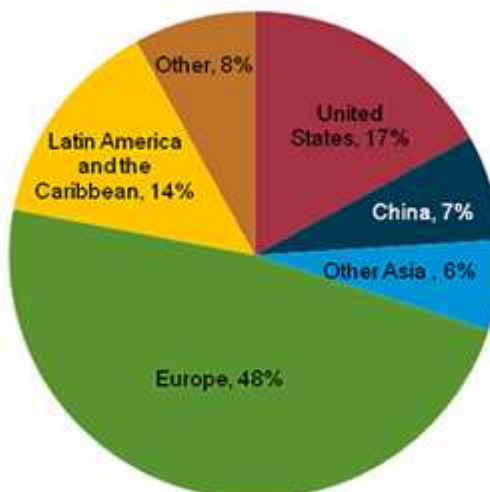
Source: U.S. Energy Information Administration

The largest coal producer in Colombia 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, accounts for over 40 percent of Colombia's exports. US-based Drummond operates the second-largest coal mine in Colombia, La Loma, which is also an integrated mine-railway-port project, producing about 20 MMst per year.

Exports

Currently, Colombia's coal exports go to Europe and the Americas. The majority of Colombia's coal production and export infrastructure is located on the Caribbean coast. Coal exports are an important part of the Colombian economy: it is the country's second-largest export after oil and represented 15 percent of export earnings in 2010. The United States and Colombia have a major trading relationship in this sector. In 2010 Colombian coal represented 75 percent of U.S. coal imports.

Colombia's Coal Exports by Destination, 2010



Source: U.S. Energy Information Administration

Colombia recently began exporting sizable quantities of coal to Asian markets, especially China. According to Global Trade Information Services, Asia's share of Colombian coal exports grew from less than one percent in 2009 to 12.7 percent in 2010. A combination of higher prices in Asia, lower freight costs, and falling exports to the United States created spurred this expansion into Asian markets. Both the expansion of the Panama Canal (currently slated for completion by 2015) and Chinese-backed transportation infrastructure projects could facilitate greater exports of Colombian coal to Asia in the future.

Links

EIA Links

[EIA - Colombia Country Energy Profile](#)

U.S. Government

[CIA World Factbook, Colombia](#)

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

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

Foreign Government Agencies

[Colombia Government Trade Bureau in Washington, D.C.](#)

[Ministry of Energy and Mines](#)

[Colombia National Hydrocarbons Agency \(ANH\)](#)

[Departamento Administrativo Nacional de Estadística](#)

Oil and Natural Gas

[Ecogas](#)

[Ecopetrol, Colombian National Oil Company](#)

Coal

[Cerrjon Coal Project](#)

[Drummond](#)

Sources

ADP News

Agence France Presse

American Oil and Gas Insights

APS Review

Argus LatAm Energy and Latin American Power Watch

Associated Press

Biofuels Digest

Business News Americas
Business Wire
Calgary Herald
Cambridge Energy Research Associates
Canada Newswire
Canwest News Service
Coal Americas
Colombia Ministry of Mines and Energy
Daily Oil Bulletin
EcoPetrol
Economist Intelligence Unit
El Pais
El Universal
Energy Resource
Energy Weekly News
Global Insight
Global Refining and Fuels Report
Global Power Report
International Oil Daily
La Prensa de Panama
La Republica
Latin America News Digest
Latin Finance
Lloyd's List
Market News Publishing
Ministerio de Energia y Minas
Mining Journal
Mining Magazine
Noticias Financieras
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Petroleum Intelligence Weekly
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