

COUNTRY ANALYSIS BRIEFS

Peru

Last Updated: May 1, 2012

Background

Peru is currently a net oil importer and a natural gas exporter, but rising exploration and development may lead to increased production and exports of both oil and gas in the next few years.

Increases in the production of natural gas and the opening of South America's first liquefied natural gas (LNG) plant have enabled Peru to become a natural gas exporter despite rising domestic consumption. Peru has the potential to be a significant producer of both natural gas and petroleum due to its untapped reserves and rising investments by international companies. New government policies aimed at attracting foreign investment may result in increased production for both export and domestic use. In addition, other policies to increase energy security by promoting energy efficiency and by using natural gas and hydropower resources for electricity generation have been implemented.



Oil

Despite a decline in crude oil production, Peru's total oil liquids output has increased in recent years as a result of the rising production of natural gas liquids.

According to the *Oil and Gas Journal*, Peru had 582 million barrels of proven oil reserves in January 2012, up from 533 million barrels in January 2011. Peru has added approximately 50 million barrels of reserves in each of the past two years.

Much of Peru's proven oil reserves are onshore, and the majority of these onshore reserves are in the Amazon region. Eleven important new hydrocarbon discoveries have occurred in just the past few years. In 2005, Peru's first offshore oil discovery occurred in the San Pedro well in Block Z-2B, where light oil was found. The largest recent discoveries have been in the offshore Talara and onshore Marañon basins, where 1.4 billion and 970 million barrels, respectively, of recoverable oil have been discovered.

Oil companies have leased at least 41 percent of the Peruvian Amazon for oil and gas drilling and could soon hold 70 percent, including areas that are officially protected for the indigenous people, as more contracts are signed with foreign investors. The current exploration boom is the second to hit this region, following an initial surge of exploration in the 1970s and 1980s.

Sector Organization

Oil production in Peru is run by foreign consortia, with the National Agency of Hydrocarbons (Perupetro) overseeing all exploration and production activities. The Ministry of Energy and Mines also participates in developing planning and policies for the sector. According to Perupetro, 75 percent of Peru's crude oil output in 2011 was produced by three companies: Argentina's Pluspetrol, Brazil's Petrobras, and Peru's Savia (formerly Petrotech). Due to an intense promotional campaign carried out by Perupetro in recent years, there are more than 50 foreign oil companies currently engaged in oil exploration. As of August 2011, Perupetro had 82 hydrocarbons contracts in force; of these 20 pertain to production and 62 to exploration projects.

Not to be confused with Perupetro, Petroperu is a state-owned company founded in 1969, which is engaged in the production, transport, refining, and distribution of petroleum. Petroperu owns Peru's pipelines and other transportation systems, four of its refineries, and fuel stations.

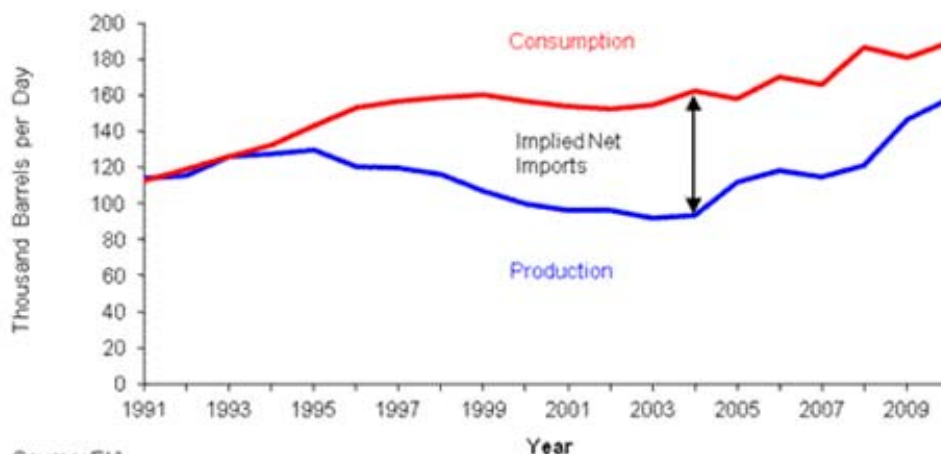
The bidding round held by Perupetro in late 2011 resulted in 11 new exploration and production contracts. Peru will offer as many as 30 exploration contracts for bidding in the second half of 2012, covering both offshore and Amazon areas.

Exploration and Production

According to EIA estimates, Peru produced 153,800 barrels per day (bbl/d) of total oil in 2011, down slightly from the 158,300 bbl/d produced in 2010, and an increase of 60 percent from the 99,600 bbl/d produced in 2000. According to Perupetro, of the 153,000 bbl/d produced in 2011, 46 percent was crude oil and 54 percent was natural gas liquids (NGL). Peru is a net oil importer of both crude and products as domestic petroleum consumption is increasing and reached 189,000 bbl/d in 2010. Much of Peru's crude oil imports come from Ecuador.

While many of Peru's existing oilfields are in decline, unexplored reserves of crude oil and natural gas liquids hold the potential for increased production. According to Perupetro, only 24 percent of Peru's crude oil currently comes from onshore fields, while almost all NGL production comes from onshore fields. Business Monitor International's January 2012 forecast projects that Peru's oil production will more than double over the next five years, from 153,000 bbl/d in 2011 to 350,000 bbl/d in 2016. Perupetro expects oil production to exceed 500,000 bbl/d by 2021, driven by production from new discoveries.

Peru's Total Oil Production and Consumption, 1991-2010



Pipelines

Peru has only one crude oil pipeline, the 621-mile Norperuano, which includes two branches that run from the Ucayali and Marañon basins in the northeastern jungle to the export terminal at Bayovar on the Pacific coast. The pipeline is owned by state-run Petroperu, which is installing additional loops in order to allow transport of extra heavy crude from more distant exploration blocks in the Amazon region. The pipeline has a maximum capacity of 250,000 bbl/d.

Downstream Activities

According to the *Oil and Gas Journal*, Peru has six oil refineries with a combined crude distillation capacity of 198,950 bbl/d. Spain's Repsol YPF operates the largest refinery in the country, La Pampilla, located in the capital of Lima. La Pampilla has capacity of 108,000 bbl/d, maintains thermal and catalytic operations, and also has asphalt production capacity. Talara, Peru's second-largest refinery at 62,000 bbl/d, is owned by Petroperu. It has recently been upgraded with a \$1 billion investment, and now has catalytic cracking capacity. Three of the country's four other refineries are also owned by Petroperu. In Pucallpa, a 3,250-bbl/d refinery is owned by Maple Gas Corp. All four of these smaller refineries have only distillation capacity.

Natural Gas

According to the *Oil and Gas Journal*, Peru had proven natural gas reserves of 12.5 trillion cubic feet (Tcf) in 2012, the fifth largest reserves in South America. Peru's main natural gas reserve is the large Camisea project in southeast Peru. Since production began in 2004, Camisea output has grown by an average of 37 percent per year, and it is expected that when site exploration is

Peru is self-sufficient in natural gas and began exporting LNG in 2010.

complete, Peru's proven reserves will be up by another 318 billion cubic feet (Bcf).

Other new major gas fields include lot 76 in Madre de Dios and Block 58 in the Ucayali basin, both onshore. Lot 76, located in southern Peru, is being explored by Hunt Oil and some estimates suggest this field could be as large as Camisea. Block 58, located in central Peru, was discovered by Petrobras in 2010 and is believed to contain some 1.7 Tcf of natural gas.

Sector Organization

Petroperu negotiates, signs, and supervises license agreements for the exploration and production of hydrocarbons in Peru, in accordance with the objectives, policies, and strategies of the Ministry of Energy and Mines. The major gas companies operating in Peru include Argentina's Pluspetrol, the U.S.'s Hunt Oil, Spain's Repsol, South Korea's SK Corp, Italy's Tecpetrol, and Algeria's Sonatrach. Pluspetrol operates the natural gas wells at Camisea, making it the largest hydrocarbons producer in the country.

The distribution of natural gas through pipelines within Peru is controlled by the private consortium Transportadora de Gas Peruano (TGP), made up of Tecgas, Pluspetrol, Hunt Oil, SK Corp, Sonatrach, and Grana y Montero.

Exploration and Production

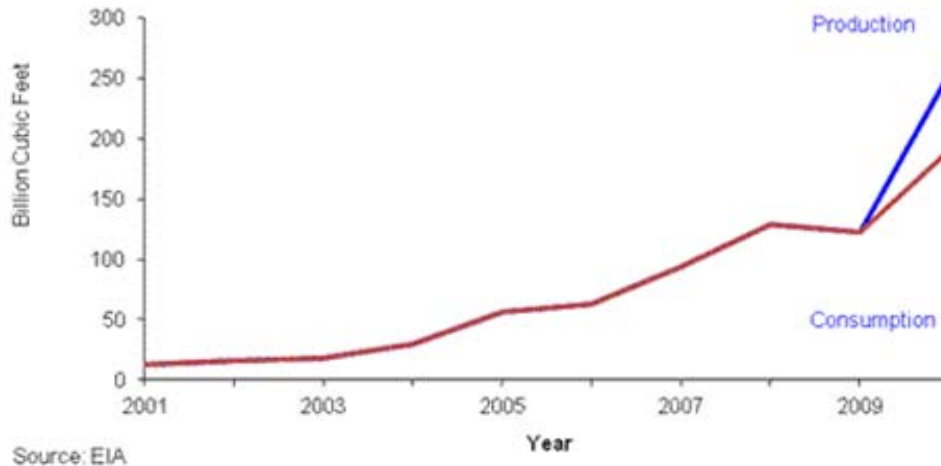
Peru produced 393 Bcf of gross natural gas in 2010, of which 106 Bcf was reinjected for enhanced oil production and 8 Bcf was vented and flared. Dry natural gas production totaled 255 Bcf in 2010, and 75 percent of the dry gas was domestically consumed.

Peru's natural gas production has been rising rapidly since 2004, when the Camisea field went onstream. Peru's domestic demand for natural gas has also risen sharply in recent years, from 30 Bcf in 2004 to 191 Bcf in 2010, driven by government incentives, economic growth, and the growing number of gas-fired electricity plants, which accounted for two-thirds of domestic natural gas consumption in Peru.

However, the rate of natural gas production began exceeding domestic consumption in 2010. By December 2010, Peru's natural gas production was in excess of 1 Bcf per day, mostly from the Camisea reserve. Business Monitor International projected in its January 2012 report that Peru's dry natural gas production will almost double from an estimated 265 Bcf in 2011 to 459 Bcf in 2016.

In 2009, unconventional gas was found in the Devonian shale beneath the Santa Rosa 1X well, which was drilled by Maple Energy in its Block 31E. Shale gas has not been previously developed in Peru and Maple Energy is continuing to evaluate the commercial opportunity at Santa Rosa.

Peru's Dry Natural Gas Production and Consumption, 2001-2010



Pipelines

There are two pipelines carrying natural gas from the Camisea gas fields. The 336-mile Camisea pipeline terminates at the Pisco port terminal, from which liquefied petroleum gases (LPG) are exported. As the pipeline passes through the Malvinas plant in the Andes Mountains, natural gas liquids (propane and heavier liquids) are separated from the natural gas. The pipeline has a capacity of 450 million cubic feet per day. A second 444-mile pipeline runs from Malvinas along

the coast to Lima and Callao for distribution to residential and industrial consumers in the capital city. The pipelines are owned by TGP. Construction of an additional 620-mile Southern Andean natural gas pipeline from Camisea to supply Cuzco, Puno, and Arequipa in the Andes, as well as Moquetada and Tacua on the coast, is expected to begin construction in 2012.

Downstream Activities

The pipeline consortium TGP pays royalties to the national government for the distribution rights of natural gas in Peru. Pluspetrol runs a gas fractionation plant at Pisco which produces propane, butane, diesel, and naphtha from the gas fields of Camisea, with half of these liquefied petroleum gases (LPG) being consumed domestically. The major expansion of Peru's natural gas production in 2010 has been followed by more infrastructure investment. In October 2010, the Ministry of Energy and Mines and the regional government of Cusco signed an agreement for the construction of a new LPG fractionation plant in Peru's southeastern region. In March 2012, the Peruvian government announced that the construction of this new LPG plant in the Cuzco area would be completed within two years, with its output to be dedicated to meeting local demand.

Liquefied Natural Gas (LNG)

Peru began exporting LNG from its Melchorita plant, South America's first natural gas liquefaction plant, in June 2010. In February 2012, Peru exported 15 Bcf (307,580 metric tons) of LNG according to LNG World News. Melchorita is owned by the PeruLNG consortium, made up of Hunt Oil at 50 percent, SK Energy at 20 percent, Repsol at 20 percent, and Marubeni at 10 percent. The plant currently has capacity of 215 Bcf per year, and a second and possibly a third train are planned to be added within the next four to five years. According to Cedigaz, in 2010, Peru shipped LNG cargoes to Spain, the United States, Mexico, China, and South Korea. However, the majority of its exports are contracted to go to the LNG terminal in Manzanillo, Mexico. Although the Manzanillo terminal and 186-mile pipeline were completed in September 2011, the need to dredge the harbor for shipping delayed the project until March 2012. The first cargo of LNG was shipped to Manzanillo on March 10, 2012.

Links

U.S. Government

[CIA World Factbook](#)

[U.S. Census](#)

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

Foreign Government Agencies

[Washington](#)

[Ministry of Energy and Mines](#)

[National Institute of Statistics](#)

[BZP Energy Peru](#)

[Hunt](#)

[Occidental Petroleum](#)

[PeruLNG](#)

[Perup](#)

[Petrobras](#)

[Petrop](#)

[Pluspetrol](#)

[Savia](#)

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Platts

U.S. Energy Information Administration

Wall Street Journal

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