

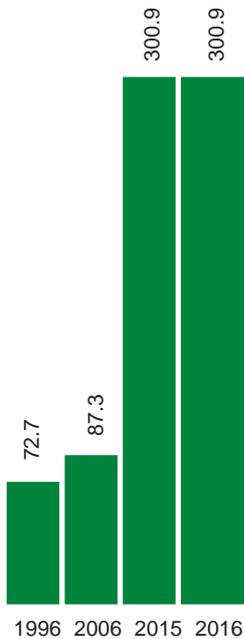
ENERGY COUNTRY REVIEW

# Venezuela

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# Country Review Venezuela

**Venezuela Year End Oil Reserves**  
Billion barrels



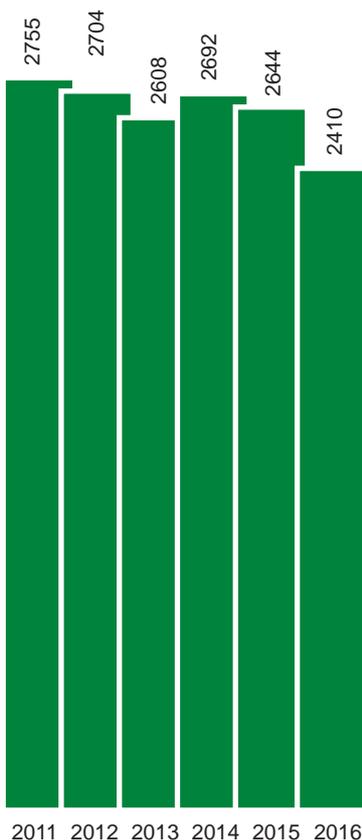
The Bolivarian Republic of Venezuela lies along South America's Caribbean Coast. It is bordered by Brazil, Colombia and Guyana. The country covers an area of around 916 thousand square kilometres, excluding the Esequibo area, and has a population of more than 29 million. Around four million people live in the capital, Caracas, and Spanish is the country's official language.

Venezuela has been an oil producer since 1914 when the first commercial oil well, Zumaque I, was drilled in the Mene Grande field on the eastern shores of Lake Maracaibo.

Venezuela's oil revenues account for about 95 per cent of export earnings. The oil and gas sector is around 25 per cent of gross domestic product. Apart from petroleum, the country's natural resources include natural gas, iron ore, gold, bauxite, diamonds and other minerals.

Venezuela is one of the world's largest producers and exporters of crude oil. It has consistently been one of the largest exporters of crude oil in the Americas. As a founding member of the Organization of the Petroleum Exporting Countries (OPEC), Venezuela is an important player in the global oil market. While production has been declining, Venezuela exports of crude oil to the United States have been among the top. In recent years, through significant upfront investment, an increasing share of Venezuela's exports have been delivered to China and India.

**Venezuela Oil Production**  
Thousand barrels per day



## Petroleum and other liquids

According to the Oil & Gas Journal (OGJ), in the beginning of 2014, Venezuela had nearly 298 billion barrels of proved oil reserves, the largest in the world. The next largest proved oil reserves are in Saudi Arabia (266 billion barrels) and Canada (173 billion barrels). The vast majority of Venezuela's proved oil reserves are located in its Orinoco heavy oil belt.

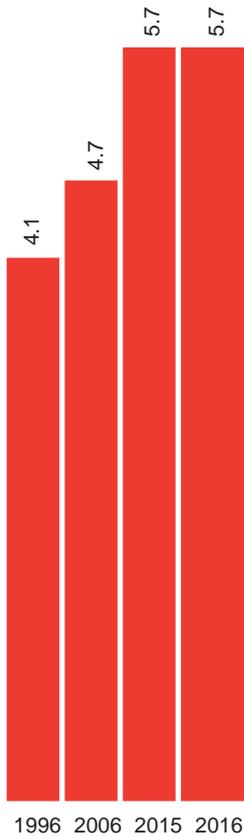
## Country Key Facts

Official name:	Bolivarian Republic of Venezuela
Capital:	Caracas
Population:	31 775 371 (2017)
Area:	916,445 km <sup>2</sup> (353,841 sq miles)
Form of government:	Federal Republic
Language:	Spanish
Religions:	Roman Catholic
Currency:	Bolívar fuerte (VEF)
Calling code:	+58

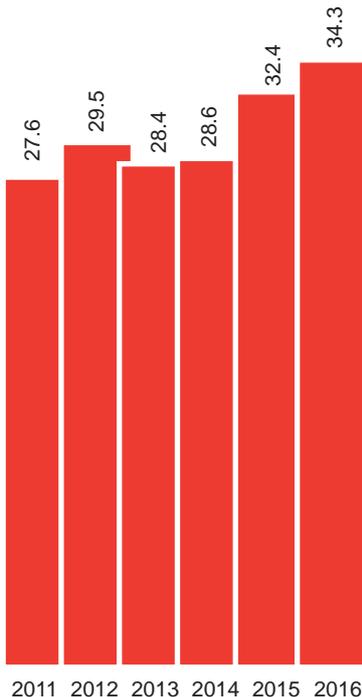
Source: BP Statistical Review

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**Venezuela Year End Oil Reserves**  
Billion barrels



**Venezuela Oil Production**  
Thousand barrels per day



Source: BP Statistical Review

## Sector organization

Venezuela nationalized its oil industry in the 1970s, creating Petroleos de Venezuela S.A. (PDVSA), the country's state-run oil and natural gas company. Along with being Venezuela's largest employer, PDVSA accounts for a significant share of the country's gross domestic product (GDP), government revenue, and export earnings. During the 1990s, Venezuela took steps to liberalize the petroleum sector. However, since the election of Hugo Chavez in 1999, Venezuela has increased public participation in the oil industry. The Chavez government initially raised tax and royalty rates on new and existing projects and mandated majority PDVSA ownership of all oil projects.

In 2002, nearly half of PDVSA's employees walked off the job in protest against the rule of then-President Chavez, largely bringing the company's operations to a halt. In the wake of the strike, PDVSA fired 18,000 workers and overhauled the internal organization to solidify government control. The loss in human capital has never been entirely recovered, resulting in a loss of technical capabilities affecting PDVSA's overall production levels. In 2006, Chavez implemented the nationalization of oil exploration and production in Venezuela, mandating a renegotiation of a 60% minimum PDVSA share in projects. Sixteen firms, including Chevron, ExxonMobil, and Royal Dutch Shell, complied with new agreements, while Total and Eni were forcibly taken over. After Chavez's death in 2013, President Maduro continued Chavez's policies. Venezuela is also increasing pressure on foreign operators that remain in the country to increase investment to offset recent production declines.

## Exploration and production

The U.S. Energy Information Administration (EIA) estimates that Venezuela produced 2.49 million barrels per day (bbl/d) of petroleum and other liquids in 2013. Crude oil and condensates represented 2.2 million bbl/d of the total, with condensates, natural gas liquids, and refinery processing gains accounting for the remaining production. This production level marks a significant decrease from production peaks in the late 1990s to early 2000s, largely owing to human capital losses from the 2002-03 strike and the diversion of revenues to social programs to bolster the administration rather than being reinvested into petroleum production.

Despite its declines and lack of reinvestment, Venezuela is still one of the largest producers of petroleum in the world. In 2013, Venezuela was the fifth largest producer in the Americas, behind the United States, Canada, Mexico, and Brazil.

## Orinoco heavy oil belt

Venezuela contains billions of barrels in extra-heavy crude oil and bitumen deposits, most of which are situated in the Orinoco Belt

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in central Venezuela. According to a study released by the U.S. Geological Survey, the mean estimate of recoverable oil resources from the Orinoco Belt is 513 billion barrels of crude oil. PDVSA began the Magna Reserva project in 2005, which involved dividing the Orinoco region into four major areas that are further divided into 28 blocks, and then quantifying the reserves in place. This initiative resulted in the upgrading of Venezuelan proven reserve estimates by more than 100 billion barrels.

In the 1990s, Venezuela's PDVSA established four strategic associations with international oil companies to exploit these resources. After the implementation of the nationalization policy in 2006, these strategic associations led by ConocoPhillips, ExxonMobil, and Total became newly formed mixed companies led by PDVSA holding majority shares. The nationalization resulted in the exit of ConocoPhillips and ExxonMobil, as they were unable to accept PDVSA taking majority shares.

The Magna Reserva projects involve converting the extra heavy crude and bitumen to lighter, sweeter crude, known as syncrude. The upgrading facilities themselves introduce another element of risk into Venezuela's petroleum supply chain. While the country's four upgraders have installed production capacity of about 600,000 bbl/d of syncrude, industry estimates place production levels for these facilities at less than 500,000 bbl/d as a result of maintenance and safety issues.

Venezuela plans to further develop the Orinoco Belt oil resources in the coming years. In 2009, Venezuela signed bilateral agreements for the development of four major blocks in the Junin area. In 2011, the country awarded two more major development licenses in the Carabobo region. Venezuela expects these projects to add more than 2 million bbl/d of heavy oil production capacity by the end of the decade. However, given recent financial, regulatory, and operational issues, considerable uncertainty surrounds the future of Orinoco production.

## Natural gas

According to OGDJ, Venezuela had 196 trillion cubic feet (Tcf) of proved natural gas reserves at the beginning of 2014, the second largest in the Americas behind the United States. In 2012, Venezuela produced 803 billion cubic feet (Bcf) of dry natural gas and consumed 869 Bcf.

Since 2003, the petroleum industry has consumed about 40% of Venezuela's gross natural gas production, primarily for gas reinjection to bolster crude oil extraction. Because of the declining output of mature oil fields, natural gas use for enhanced oil recovery has increased by 42% since 2005. To meet the growing industrial

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demand for natural gas, Venezuela imports gas from Colombia and the United States. The government has prioritized developing domestic natural gas production for industrial uses as well as residential and commercial markets, and is developing its gas infrastructure in support of this effort.

In 1999, Venezuela adopted the Gas Hydrocarbons Law, which was intended to diversify the economy through facilitating non associated natural gas development and expanding the role of natural gas in Venezuela's energy sector. This legislation allows private operators to own 100% of non-associated projects, in contrast to the ownership rules in the oil sector. It also mandates lower royalty and income tax rates on non associated natural gas projects than on oil projects. The law gives PDVSA the right to purchase a 35% stake in any project that moves into commercial status. In 2007, Chavez announced a public referendum on proposed constitutional amendments, one of which would entitle the state to a controlling stake in new gas projects, similar to that of the oil sector. However, the Venezuelan people defeated the referendum in December 2007. Since then, the state has yet to repropose amendments to the gas law.

PDVSA produces the largest amount of natural gas in Venezuela, and it is also the largest natural gas distributor. A number of private companies also currently operate in Venezuela's gas sector. Participants with significant assets include Repsol-YPF, Chevron, and Statoil.

## **Exploration and production**

An estimated 90% of Venezuela's natural gas reserves are associated, meaning they are located in the same place as oil reserves. Following Chavez's announcement of the Socialist Gas Revolution in 2009, the Energy and Petroleum Ministry announced plans to increase natural gas production to roughly 14 billion cubic feet per day (Bcf/d) and to begin exporting natural gas by 2015. Currently, Venezuela is working to increase the production of non associated gas, largely through the development of its offshore reserves. Onshore, PDVSA is working toward raising production and capacity at existing sites, including the Anaco field, the Barrancas field, and Yucal Placer. Offshore, PDVSA has awarded exploration blocks to international oil companies, including Total, Statoil, and Chevron, in the Plataforma Deltana, Marsical Sucre, and Blanquilla-Tortuga areas off Venezuela's northeast coast. Venezuela has also awarded exploratory blocks to Gazprom and Chevron to develop the potential 26 Tcf gas blocks in the Gulf of Venezuela in the northwestern part of the country.

Offshore exploration has yielded many successful finds, including Repsol-YPF and ENI's discovery of 6-8 Tcf of recoverable natural gas in the Cardon IV block in the Gulf of Venezuela, one of the largest natural gas discoveries in the history of the country. In early 2014, ENI announced gas production would begin in 2015 at their Perla field project with estimated reserves of 15 Tcf of natural gas.

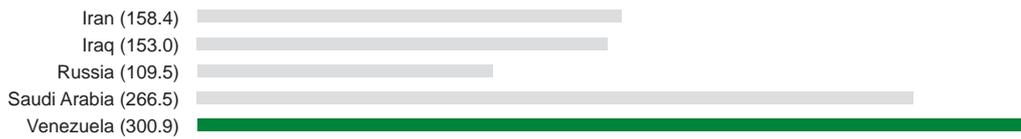
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PDVSA had also found a field with a potential 7.7 Tcf gas reserve at Tia Juana Lago in the Sur area. For Venezuela's offshore gas development to move forward, international partners will need to play a central role in production. PDVSA does not have experience in producing non associated gas—the company's most recent attempt at operating an offshore natural gas project resulted in the sinking of the Aban Pearl semi-submersible drilling rig in May 2010.

*Source: International Energy Agency, Energyfiles.com, Opec, Quest Oil Corp.*

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Proved oil reserves at 2016 year end (billion bbls)



Proved gas reserves at 2016 year end (trillion cubic feet)



2016 oil production (thousand bbls per day)



2016 gas production (billion cubic metres)



Source: BP Statistical Review