

COUNTRY ANALYSIS BRIEFS

Algeria

Last Updated: Mar. 8, 2012

Background

Algeria's economy is heavily reliant on its hydrocarbons sector

Algeria is an important oil and natural gas producer and a member of the Organization of the Petroleum Exporting Countries (OPEC). Algeria's hydrocarbons sector accounted for 60 percent of its budget revenues, 36 percent of its GDP, and over 97 percent of its export earnings in 2010, according to the U.S. State Department.

In 2010, Algeria was the fourth largest crude oil producer in Africa after Nigeria, Angola, and Libya. As a member of OPEC, Algeria's crude oil production can be constrained by the group's crude production quotas, but Algeria also produces condensate and natural gas liquids, which are exempt from OPEC quotas.

Algeria was the eighth largest natural gas producer in the world in 2010 and the third largest gas supplier to Europe.

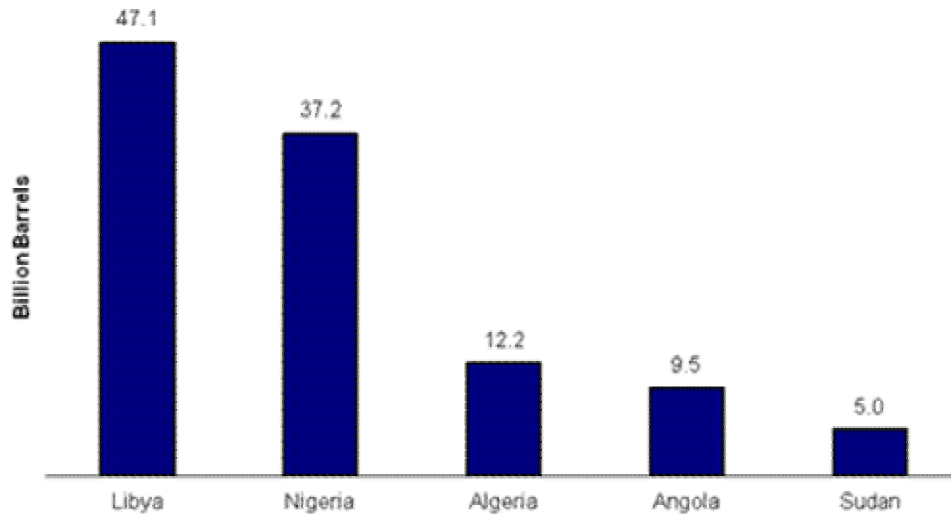


Oil

Algeria is a member of the Organization of Petroleum Exporting Countries (OPEC) and the world's thirteenth largest oil producer

According to the Oil and Gas Journal (OGJ), Algeria held an estimated 12.2 billion barrels of proven oil reserves as of January 2012, the third largest reserves in Africa (behind Libya and Nigeria). Hassi Messaoud basin, located in the eastern part of the country near the Libyan border, is the country's largest oil basin and producing oilfield and contains up to 60 percent of Algeria's proven oil reserves. The Berkine basin, together with the Ourhoud fields, is the second largest in the country and has been the source of a number of recent discoveries, which have allowed Algerian oil production levels to rise significantly since 2003.

Top 5 African Proven Oil Reserve Holders, 2012



Source: *Oil and Gas Journal*

Organization

The Algerian national oil company is Entreprise Nationale Sonatrach (Sonatrach), which plays a key role in all aspects of the oil and natural gas sectors in Algeria. All foreign operators must work in partnership with Sonatrach, which usually has majority ownership in production-sharing agreements.

Since the late 1990s, Algeria has encouraged the expansion of foreign investment in the oil and gas sectors. Foreign oil operators have steadily increased their participation in exploration and production, which has led to reserve and production growth. The largest foreign oil producer is Anadarko, with total production capacity of more than 500,000 bbl/d from its operation at the combined Hassi Berkine South and Ourhoud fields. Other large foreign investors include: BP, Conoco-Phillips, Eni, Shell, Statoil, and Total.

In November 2011, Sonatrach's fourth chief executive in two years was appointed by the energy minister. Sonatrach continues to be affected by the 2010 corruption investigation that resulted in the dismissal of its chief executive and many of the company's senior management team.

In December 2011, the Algerian energy minister announced that changes will be made to the country's Hydrocarbon Law to boost foreign companies' interest in exploration investments. Attempts to attract foreign energy companies to invest in exploration projects have foundered over the past few years. Reportedly, the frequent delays involved in Algerian projects, stringent financial terms, and a windfall tax on foreign oil producers whenever the price of oil exceeds \$30 per barrel have dampened international companies' interest in bidding rounds. In March 2011, Algeria awarded only 2 out of 10 oil and gas permits on offer in its latest licensing round. The winning bidders were Sonatrach and Spain's Cepsa. This was the third bid round in a row to attract lackluster interest from foreign firms.

Production and Development

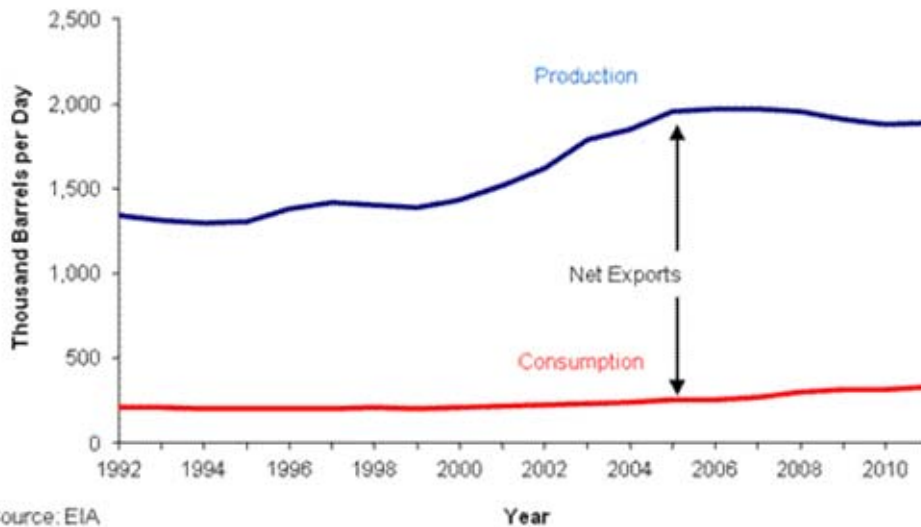
Algeria produced an estimated average of 1.27 million barrels per day (bbl/d) of crude oil in 2011, about the same as it produced in 2010. Together with 270,000 bbl/d of condensate and 340,000 bbl/d of natural gas liquids, which are not included in its OPEC quota, Algeria averaged 1.88 Mmbbl/d of total oil liquids production during 2011.

Algerian oilfields produce high quality light crude oil with very low sulfur and mineral contents. The main areas for exploration are in the east near the borders of Tunisia and Libya, and in the central area, where large natural gas discoveries have been made. Algeria is maintaining its oil production capacity by enhancing oil recovery in older fields, increasing exploration, and developing new oilfields to compensate for the decline in older fields. The government's long-term target is to maintain crude oil production capacity at about its current level.

Sonatrach operates the largest oil field in Algeria, Hassi Messaoud, which is reported to have produced around 350,000 bbl/d of crude oil in 2010, about 28 percent of Algeria's total. The government recently awarded new contracts to increase Hassi Messaoud production by developing new areas of the field and by adding a new LPG plant. Hassi Berkine, a joint venture between Sonatrach and Anadarko, reportedly produced 300,000 bbl/d in 2010, and the Ourhoud field, a joint venture between Sonatrach and Cepsa located in the Berkine basin, produced about

250,000 bbl/d. The El Merk field, located south of Hassi Messaoud in the Sahara desert, is expected eventually to add 100,000 bbl/d of crude oil, 30,000 bbl/d of condensate, and 30,000 bbl/d of net gas liquids to Algeria's oil production after coming online in the fourth quarter of 2012. El Merk is a joint venture by Sonatrach, Anadarko, Eni, and Burlington.

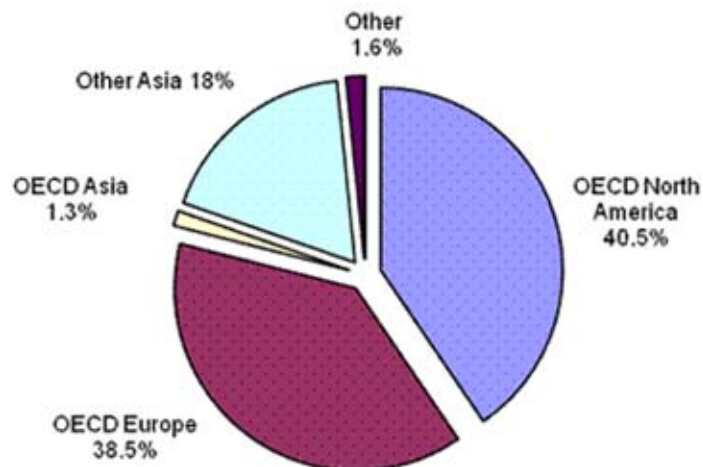
Algeria's Total Oil Liquids* Production and Consumption, 1992-2011



Exports

In 2011, Algeria's estimated crude oil exports were 750,000 bbl/d, of which the largest portion went to North America, mainly to the United States. In 2010, Algeria's estimated total oil exports (including all liquids) were 1.5 million bbl/d. According to EIA estimates, the United States imported an average of 510,000 bbl/d from Algeria in 2010, of which 328,000 bbl/d was crude oil. The United States was the largest single importer of Algerian crude oil in both years.

Algeria's Crude Oil Exports, 2011



Source: IEA, EIA, LMIU, GTIS

Downstream

In January 2012, Algeria had total crude oil refining capacity of 450,000 bbl/d at four refineries, according to the Oil and Gas Journal. Sonatrach aims to upgrade and expand its existing refineries at Arzew, Algiers, and Skikda. The country is in need of increased refining capacity as rising demand for gasoline and diesel has resulted in rising imports of refined products.

The Skikda refinery, at 300,000 bbl/d, produces about 67 percent of Algeria's refined products. It is being modernized and expanded to more than double its current capacity by the end of 2012. The expansion will include a liquefied natural gas (LNG) plant as well as three liquefied petroleum gas (LPG) facilities.

The 60,000-bbl/d Algiers refinery, which processes crude from Hassi Messaoud, is being upgraded to produce an additional 20,000 bbl/d in 2014 and will provide gasoline and other products to European specifications.

The 60,000-bbl/d Arzew refinery produces products for both domestic consumption and export. A contract was awarded in 2008 to rehabilitate this refinery and increase its production by 30,000 bbl/d by mid-2012.

The 30,000-bbl/d Hassi Messaoud refinery supplies products to southern Algeria. A Sonatrach project to build three additional LPG trains was awarded to Saipem in 2010, but has been delayed.

Pipelines and Export Terminals

Algeria uses seven coastal terminals to export crude oil, refined products, LPG, and natural gas liquids (NGL). These facilities are located at Arzew, Skikda, Algiers, Annaba, Oran, Bejaia, and La Skhirra in Tunisia. Arzew handles about 40 percent of Algeria's total hydrocarbon exports, including all of its NGL, LPG, and oil condensate exports. Arzew and Skikda are also the shipping points for LNG.

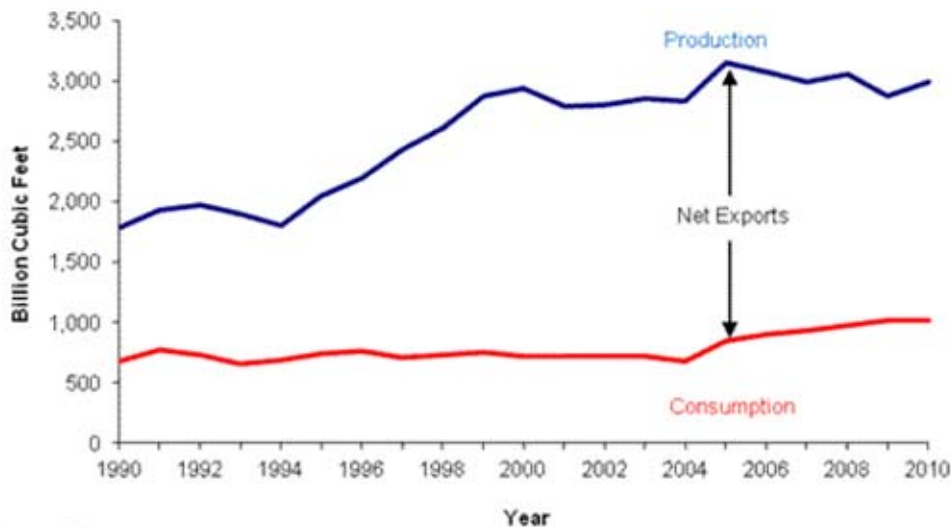
Algeria's domestic pipeline network facilitates the transfer of oil from interior production fields to the export terminals. Sonatrach operates over 2,400 miles of oil pipelines in the country. The most important pipelines carry crude oil from the Hassi Messaoud field to refineries and export terminals. Algeria's major crude oil export pipelines are: the two parallel 500-mile Haoud el Hamra to Arzew pipelines, the 415-mile Haoud el Hamra to Bejaia line, the 400-mile Haoud el Hamra to Skikda pipeline, and the border-crossing 482-mile pipeline from In Amenas to La Skhirra, Tunisia. Sonatrach also operates oil condensate and LPG pipeline networks that link Hassi R'Mel and other fields to Arzew.

Natural Gas

According to *The Oil and Gas Journal (OGJ)*, as of January 2012, Algeria had 159 trillion cubic feet (Tcf) of proven natural gas reserves, the tenth largest natural gas reserves in the world and the second largest in Africa after Nigeria. Algeria's largest natural gas field is Hassi R'Mel, discovered in 1956. Located in the eastern part of the country, it holds proven reserves of about 85 Tcf, more than half of Algeria's total proven natural gas reserves. The remainder of Algeria's natural gas reserves come from associated (they occur alongside crude oil reserves) and non-associated fields in the south and southeast regions of the country.

Algeria is the third largest exporter of natural gas to Europe

Algeria's Dry Natural Gas Production and Consumption, 1990-2010



Source: EIA

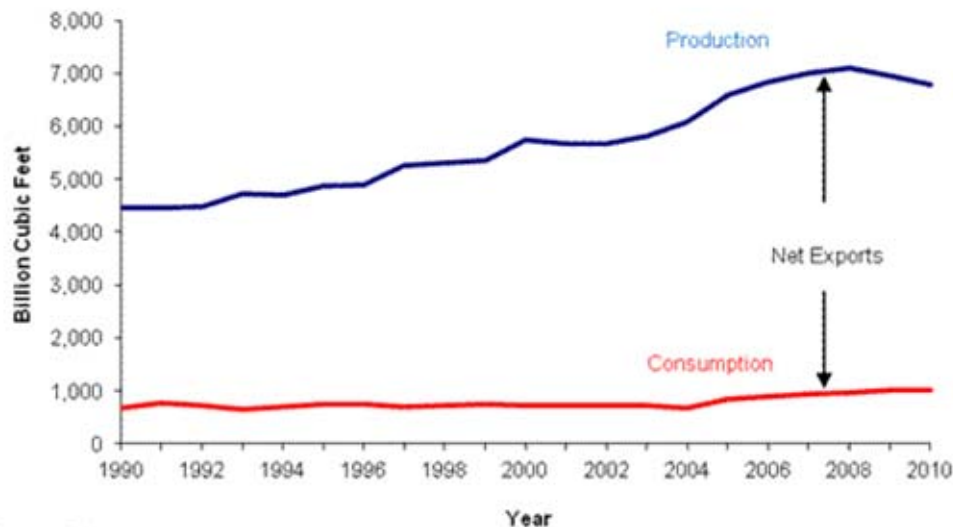
Production

Algeria's gross natural gas production in 2010 was 6.8 Tcf compared with 6.9 Tcf in 2009. Of this amount, 3.2 Tcf was reinjected for enhanced oil recovery, 3.5 Tcf was marketed, while 0.2 Tcf was vented/flared.

Algeria is in the process of developing its Southwest Gas Project, which includes the Repsol-led 102 billion cubic feet per year (Bcf/y) Reggane Nord fields, the 56 Bcf/y Timimoun project led by Total, and GDF Suez's 159 Bcf/y Touat project. Final approval of the Reggane Nord project occurred in November 2011. The project includes the construction of gas gathering facilities, a gas treatment plant, and pipeline to Hassi R'Mel gas hub. Repsol holds a 29.25 percent stake in partnership with Sonatrach, at 40 percent, RWE Dea, at 19.5 percent, and Edison, at 11.25 percent. The project is slated to come online in mid-2016, 2 years later than originally estimated. Reggane Nord will open up the wider development of Algeria's southwest gas fields, including the Timimoun and Touat projects. The Timimoun project is projected to come onstream in 2014, and the Touat project is also expected to be given the green light soon, according to Algeria's state news agency in February 2012.

Another major project in the area, the Menzel Ledjmet East (MLE) project led by Eni, is projected to start production of 116 Bcf/y in mid-2012, along with associated gas liquids and oil. The projects in the southwest are co-dependent, as they will all rely on the construction of a new gas pipeline linking them to Hassi R'Mel. Following a recent decline in upstream licensing activity, the development of gas from the southwest has taken on greater importance for Algeria's capacity to meet contracted gas exports and increasing domestic demand in the medium term.

Algeria's Total Natural Gas Production and Consumption, 1990-2010



Source: EIA

Domestic Pipelines

Algeria's more than 4,000-mile domestic natural gas pipeline system centers on the Hassi R'Mel natural gas field, which is owned by Sonatrach. The pipelines collect and distribute more than 10 Bcf/d. The largest pipeline systems connect Hassi R'Mel to the export pipelines to Europe and liquefied natural gas (LNG) terminals along the Mediterranean Sea. Since Hassi R'Mel is the hub of Algeria's entire natural gas transport network, all of the country's natural gas-producing regions are connected to it by pipelines.

Pipeline Exports

According to Cedigaz estimates, Algeria's natural gas exports totaled 1.97 Tcf in 2010, up from 1.86 Tcf in 2009. About 65 percent of Algeria's total natural gas exports, or 1.29 Tcf, moved through the natural gas pipelines connecting Algeria with Italy and Spain, while 35 percent, or 0.682 Tcf, was exported by tanker in the form of LNG. Algeria was the third largest natural gas supplier to Europe after Russia and Norway in 2010.

After a number of delays, the \$1.2 billion Medgaz undersea pipeline came online in March, 2011.

The 403 Bcf/y-capacity, 120-mile Medgaz undersea line links Beni Saf, Algeria to Almeria, Spain. Sonatrach owns 36 percent, Spain's Iberdrola and Cepsa each own 20 percent, and Endesa and Gaz de France hold 12 percent each. Interconnecting pipelines from Spain to France, which would make France and the rest of Europe potential outlets for Spain's surplus gas, are in the planning stages, and could become operational in the 2013-2015 time frame.

The 1,370-mile Trans-Mediterranean (Transmed, also called Enrico Mattei) line runs from Hassi R'Mel, via Tunisia and Sicily, to mainland Italy, with an extension running to Slovenia. It was completed in 1983 and doubled in capacity in 1994 to 847 Bcf/y. A third line was opened in February 2010, further expanding total capacity to 1,059 Bcf/y.

The 1,000-mile, 424 Bcf/y capacity Maghreb-Europe Gas pipeline (MEG, also called Pedro Duran Farell), was completed in 1996 for \$2.3 billion. It connects Hassi R'Mel via Morocco with Cordoba, Spain, where it ties into the Spanish and Portuguese natural gas transmission networks. Natural gas from Algeria is provided to Spain, Portugal, and Morocco. An international consortium, led by Spain's Enagas, Morocco's SNPP, Portugal's Transgas and Sonatrach, operates this line.

The Galsi natural gas pipeline, which would link Annaba on the Algerian coast with Piombino in mainland Italy via Sardinia, is still in the planning stages. It would be the deepest underwater pipeline ever built, running 9,265 feet underwater at its deepest point. The expected initial capacity is 282 Bcf/year and it has been projected to come on stream in 2014.

Liquefied Natural Gas

In 2010, Algeria was the world's seventh largest exporter of LNG, exporting about 7 percent of the world's total LNG exports. Primary customers were France, Spain, Turkey, Italy, and the U.K. Cedigaz estimates that a total of 682 Bcf of LNG was exported in 2010, comprising 35 percent of the country's total natural gas exports.

With the start-up of the LNG plant at Arzew in 1964, Algeria became the world's first producer of LNG. The Arzew plant had three trains until February 2011, when the oldest was closed down, being considered too dilapidated and dangerous to operate. This deprived Algeria of around 53 Bcf/y of LNG. A new LNG plant with capacity of 218 Bcf/y is under construction and due to open in 2013. Gas supplies will be coming from the Gassi Touil fields.

Algeria's Skikda LNG plant, built in 1972, was partly destroyed by an explosion in 2004. Three of the six trains were repaired but the other three are being replaced by one new train with a 250 Bcf/y capacity, expected to come online in 2013.

The National Shipping Company, a Sonatrach subsidiary, operates 28 LNG, crude, and product tankers and has reportedly commissioned a further 10 vessels for delivery by 2013.

Links

EIA Links

[EIA: Algeria Country Energy Profile](#)

U.S. Government

[CIA World Factbook](#)

[U.S. Commerce Department Country Commercial Guide for Algeria](#)

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

[U.S. State Department Profile on Algeria](#)

Foreign Government Agencies

[Algeria and the IMF](#)

[Algerian Ministry of Energy and Mining](#)

[Embassy of Algeria in Washington, DC](#)

Oil and Natural Gas

[Anadarko](#)

[British Petroleum](#)

[Conoco Phillips](#)

[Galsi](#)

[Sonatrach](#)

[Statoil](#)

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Contact Info

cabs@eia.gov
(202)586-8800
cabs@eia.doe.gov