

COUNTRY ANALYSIS BRIEFS

Algeria

Last Updated: June 2010

Background

Algeria's economy is heavily reliant on its hydrocarbons sector.

Algeria's hydrocarbons sector accounted for 60 percent of its budget revenues, nearly 30 percent of its GDP, and over 97 percent of its export earnings in 2008, according to the U.S. State Department.

In 2009, Algeria produced a total of 2.13 million barrels per day (bbl/d) of oil liquids, of which 1.33 million bbl/d was crude oil. Algeria was the fourth largest crude oil producer in Africa after Nigeria, Angola, and Libya and the largest total oil liquids producer on the continent. As a member of OPEC, Algeria's crude oil production can be constrained by the group's crude production quotas, but Algeria also produced 456,600 bbl/d of condensate and 344,000 bbl/d of natural gas liquids, all of which are exempt from OPEC quotas. Domestic oil consumption reached about 15 percent of total production, or 325,000 bbl/d, in 2009.

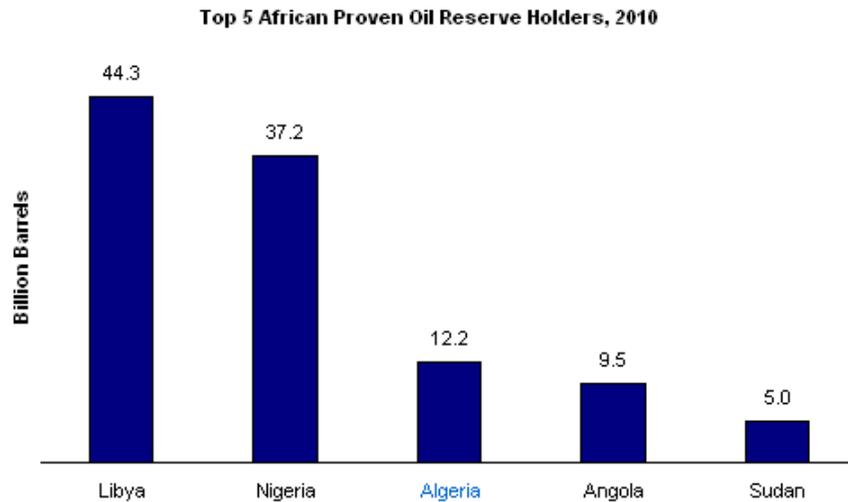
Algeria was the sixth largest natural gas producer in the world in 2008 after Russia, the United States, Canada, Iran, and Norway. Algeria produced 3.05 trillion cubic feet (tcf) of natural gas in 2008, of which 69 percent was exported and 31 percent was consumed domestically.



Oil

Algeria is an important oil exporting country and a member of the Organization of Petroleum Exporting Countries (OPEC).

According to *The Oil and Gas Journal (OGJ)*, Algeria held an estimated 12.2 billion barrels of proven oil reserves as of January 2010, the third largest in Africa (behind Libya and Nigeria). Algeria's largest proven reserves are located in the eastern part of the country near the Libyan border. The Hassi Messaoud and Berkine basins are in this area. Hassi Messaoud is the country's largest producing oilfield and contains up to 60 percent of proven reserves. The Berkine basin and nearby Ourhoud fields, the second largest oil basin, have been the source of a number of recent discoveries, which have allowed Algeria to raise its production levels since 2003.



Source: *Oil and Gas Journal*

Production and Development

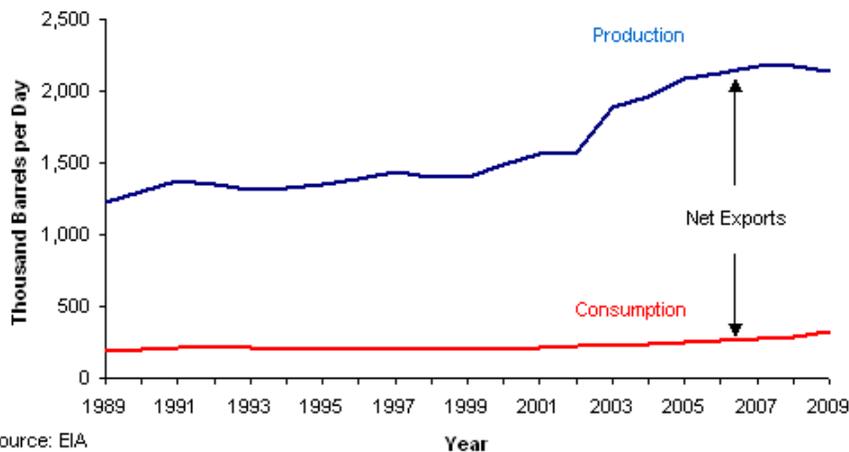
Algeria produced an estimated average of 1.33 million barrels per day (Mmbl/d) of crude oil in 2009, down from the 1.42 it produced in 2008, in part due to OPEC quota cuts. Together with 457,000 bbl/d of condensate and 345,000 bbl/d of natural gas liquids, which are not included in its OPEC quota, Algeria averaged 2.13 Mmbl/d of total oil liquids production during 2009, according to EIA estimates.

State-owned Sonatrach controls the oil and natural gas sectors in Algeria, but has increasingly allowed greater foreign investment in the sectors. Foreign oil and gas companies have entered into numerous partnership agreements with Sonatrach, which have led to reserve and production growth.

Sonatrach operates the largest oil field in Algeria, Hassi Messaoud, which is reported to have produced around 350,000 barrels per day (bbl/d) of crude in 2009, about 26 percent of crude oil production. Hassi Berkine, a joint venture between Sonatrach and Anadarko, reportedly produced 250,000 bbl/d in 2009, roughly 20 percent of total crude production.

Algeria is taking steps toward maintaining its oil production capacity by developing new oilfields to compensate for the decline in older fields. In December 2009, Sonatrach announced the discovery of 16 oil fields in the Berkine, Illizi, and Hassi Messaoud basins since the beginning of 2009. Some of this capacity would replace declines in older fields. Algeria's long-term target is to maintain crude oil production capacity at about its current level.

Algeria's Total Oil Liquids* Production and Consumption, 1989-2009



Source: EIA

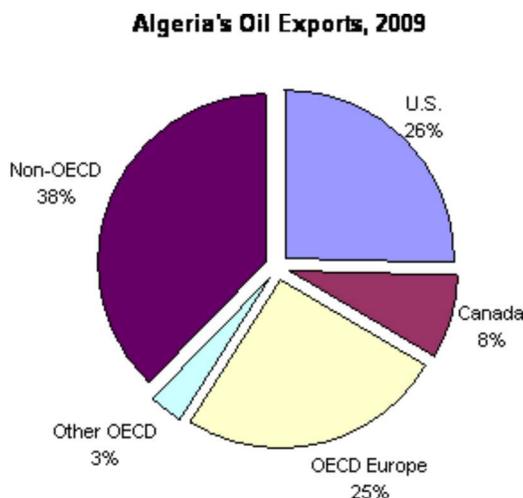
* crude oil plus products

Exports

Algeria is an important oil exporter. Algeria's estimated net oil exports (including all liquids)

reached 1.8 Mmbbl/d in 2009, including 1.33 Mmbbl/d of crude. EIA estimates that the United States imported an average of 488 bbl/d from Algeria in 2009 and was the largest single importer of Algerian oil at about 27 percent of Algeria's total oil exports that year.

According to data from the International Energy Agency, an average of 1.18 Mmbbl/d from Algeria was imported by member countries of the Organization for Economic Cooperation and Development (OECD) in 2009, or 62 percent of total exports. About 482,000 bbl/d were imported by the OECD European countries, of which France, Germany, Italy, the U.K. were the major importers. Another 149,000 bbl/d went to Canada, while about 61,000 went to other OECD countries, including Japan and South Korea.



Sources: IEA, EIA

Downstream

In January 2010, Algeria had total crude oil refining capacity of 450,000 bbl/d. The Skikda refinery (300,000 bbl/d) provides the bulk of Algeria's refined products production, and it is currently being modernized to increase its refining capacity by 2012. The 30,000-bbl/d Hassi Messaoud refinery supplies products to southern Algeria. The 60,000-bbl/d Algiers refinery processes crude from Hassi Messaoud for consumption in the capital. Sonatrach plans to upgrade the Algiers refinery but no date has been reported for its completion. The 60,000-bbl/d Arzew refinery produces products for both domestic consumption and export. A contract was awarded last year to rehabilitate this refinery. A new 300,000-capacity refinery is planned for Tiaret, which is now projected to be completed in 2013. The upgrades to existing refineries and the addition of two new ones will double current domestic refining capacity to 1 Mmbbl/d while improving the quality of products sold on the European and U.S. markets.

Pipelines and Export Terminals

Algeria uses seven coastal terminals to export crude oil, refined products, liquefied petroleum gas (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 liquefied natural gas (LNG).

Algeria's domestic pipeline network facilitates the transfer of oil from interior production fields to the export terminals. Sonatrach operates over 2,000 miles of oil pipelines in the country. The most important pipelines carry crude oil from the Hassi Messaoud field to export terminals. Sonatrach also operates oil condensate and LPG pipeline networks that link Hassi R'Mel and other fields to Arzew. Sonatrach has expanded the Hassi Messaoud-Arzew pipeline, the longest in the country, to include a second, parallel line that more than doubles the capacity of the existing line.

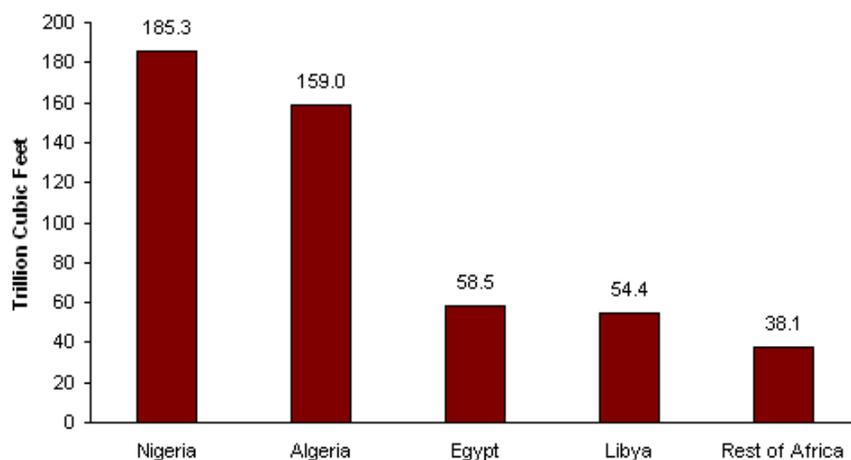
Sonatrach announced in 2008 that \$5.5 billion would be spent by 2012 on renovating and extending its domestic oil and gas pipelines. Algeria's major crude oil export pipelines are: the 498-mile Haoud el Hamra to Arzew pipeline, the parallel 511-mile Haoud el Hamra to Arzew pipeline, the 415-mile Haoud el Hamra to Bejaia line, the 482-mile In Amenas to La Skhirra, Tunisia, pipeline, and the 400-mile Haoud el Hamra to Skikda pipeline.

Natural Gas

Algeria is a significant producer and exporter of natural gas and liquefied natural gas (LNG).

According to *The Oil and Gas Journal (OGJ)*, as of January 2010, 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. Algeria's largest gas field is Hassi R'Mel, discovered in 1956 and holding proven reserves of about 85 Tcf, accounting for about half of Algeria's total dry natural gas production. 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.

Top African Natural Gas Proven Reserve Holders, 2010



Source: *Oil and Gas Journal*

Production

Algeria produced 3.06 Tcf of dry natural gas in 2008, and consumed 0.93 Tcf of dry natural gas domestically. The Algerian government has encouraged the increased use of natural gas for electricity generation, which represented about 60 percent of the country's total domestic energy consumption in 2008. Out of total gross natural gas production of 7.1 Tcf in 2008, 47 percent was reinjected, 2 percent was vented and flared, 8 percent lost, 13 percent consumed domestically, and 30 percent was exported.

State-owned Sonatrach dominates natural gas production and wholesale distribution in Algeria, while state-owned Sonelgaz controls retail distribution. Since the late 1990s, Algeria has encouraged the expansion of foreign investment in the oil and gas sectors, and foreign gas producers, including BHP-Billiton, BP, Eni, Repsol, Statoil, and Total, have entered into numerous partnership agreements with Sonatrach. However, according to the 2005 hydrocarbon reform law, Sonatrach retains ownership of 51 percent of a project.

Algeria has plans to expand and develop its Southwest Gas Project, which includes the Repsol-led 102.4 billion cubic feet per year (Bcf/y) Reggane Nord fields, the 56.5 Bcf/y Timimoun project led by Total, and Gaz de France's 159 Bcf/y Touat project. Gas from the latter 2 projects is slated to start flowing in 2013, connected by pipelines to Hassi R'Mel.

Domestic Pipelines

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

Exports

Algeria's natural gas exports totaled 2.12 Tcf in 2008, down slightly from 2.17 Tcf in 2006. Almost two-thirds of Algeria's total natural gas exports currently move through two natural gas pipeline connections operating between Algeria and Europe, the remaining one-third of total natural gas exports is exported in the form of LNG. Algeria is the fourth-largest gas supplier to the European Union after Russia, Norway, and the Netherlands.

According to Cedigaz, in 2008 Algeria exported 3.62 Bcf/d by pipelines to Europe, of which Italy received 2.3 Bcf/d, Spain received 867 Mmcf/d, and Portugal 186 Mmcf/d. Algeria also exported 2.12 Bcf/d of LNG, mostly to France.

The 670-mile, 2.32-Bcf/d Trans-Mediterranean (Transmed, also called Enrico Mattei) line runs from Hassi R'Mel, via Tunisia and Sicily, to mainland Italy. Completed in 1983 and doubled in 1994, a third line of 340 miles was opened in February 2010, expanding capacity by 677 Mmcf/d.

The 1,000-mile, 820-Mmcf/d Maghreb-Europe Gas pipeline (MEG, also called Pedro Duran Farell), was completed in 1996 and connects Hassi R'Mel via Morocco with Cordoba, Spain, where it ties into the Spanish and Portuguese natural gas transmission networks. An international consortium, led by Spain's Enagas, Morocco's SNPP, and Sonatrach, operates this line.

After a number of delays, the \$1.2 billion Medgaz is expected to start operating in July 2010, with a capacity of 775 Mmcf/d. The 120-mile Medgaz links Beni Saf, Algeria to Almeria, Spain. Expanded Spain-France interconnectors, which would make France and the rest of Europe a potential outlet for Spain's surplus gas, are not expected to become operational before 2013-2015.

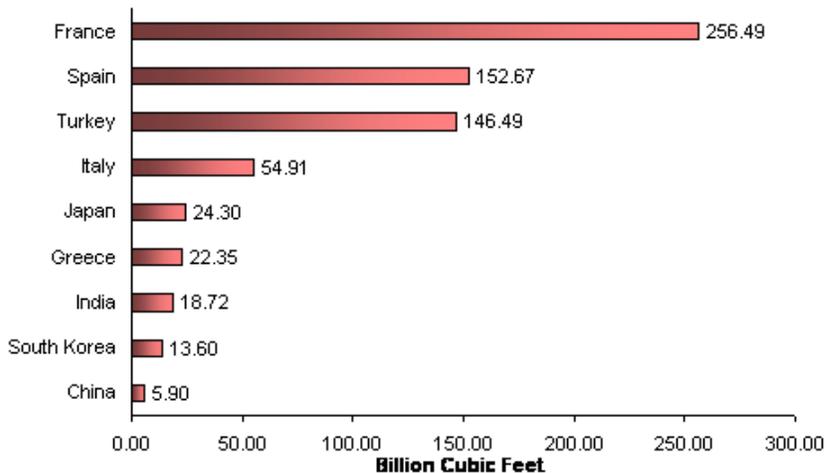
Liquefied Natural Gas

Algeria's LNG exports currently make up about one-third of the country's total natural gas exports. About 711 Bcf of LNG was exported in 2008. Most of Algeria's LNG exports go to Europe: about 643 Bcf, or 90 percent, in 2008, according to EIA estimates. Algeria in 2008 was the world's sixth largest exporter of LNG (behind Qatar, Malaysia, Indonesia, Australia, and Nigeria), exporting around 9 percent of the world's total LNG exports. Primary customers are France, Spain, Turkey, and Italy. In 2008, Algeria supplied 34 percent of OECD Europe's LNG imports.

With the start-up of the Arzew GL4Z plant in 1964, Algeria became the world's first producer of LNG. Arzew is still Algeria's largest LNG export terminal. In mid-2009, it was reported that Sonatrach had awarded a contract to Japan's JGC Corporation to construct an upstream gas gathering center at the the Gassi Touil field to supply an additional 124 Bcf/y by 2012 to the new 229 Bcf/y Arzew LNG plant which is currently under construction by a consortium of Saipem and Chiyoda. Other important LNG terminals include Skikda and Algiers. The Skikda LNG plant is being replaced and expanded to 229 Bcf/y after an explosion in 2004 and is expected to come back online in 2012. A \$1.2-billion contract with Samsung Engineering was awarded in the fall of 2009. Algeria's LNG export capacity is reportedly expected to increase by 630 Bcf/y by 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 between 2011 and 2013 which will increase its LNG capacity alone to about 50 million cubic feet by 2011.

Top Importers of Algerian LNG, 2008



Source: EIA

Profile

Energy Overview

| | |
|--|--------------------------------|
| Proven Oil Reserves (January 1, 2010E) | 12.2 billion barrels |
| Oil Production (2009E) | 2,134 thousand barrels per day |
| Oil Consumption (2009E) | 325 thousand barrels per day |
| Crude Oil Distillation Capacity (2010E) | 450 thousand barrels per day |
| Proven Natural Gas Reserves (January 1, 2010E) | 159 trillion cubic feet |

| | |
|--|----------------------------|
| Natural Gas Production (2008E) | 3.055 trillion cubic feet |
| Natural Gas Consumption (2008E) | 0.95 trillion cubic feet |
| Electricity Installed Capacity (2007E) | 6.5 gigawatts |
| Electricity Production (2008E) | 37.6 billion kilowatthours |
| Electricity Consumption (2007E) | 26.9 billion kilowatthours |
| Total Energy Consumption (2007E) | 1.6 quadrillion Btu* |
| Total Per Capita Energy Consumption (2007E) | 48.2 million Btu |
| Energy Intensity (2007E) | 6,309 Btu per 2000\$*** |

Environmental Overview

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|--|-------------------------------|
| Energy-Related Carbon Dioxide Emissions (2008E) | 105.6 million metric tons |
| Per-Capita, Energy-Related Carbon Dioxide Emissions (2008E) | 3.1 metric tons |
| Carbon Dioxide Intensity (2008E) | 0.4 metric tons per 2000\$*** |

Oil and Gas Industry

| | |
|---|--|
| Organization | Sonatrach – State-owned company for exploration, transport and marketing of petroleum, natural gas and related products; Naftec – Operates and manages all refineries; Naftel – Domestic product distribution; Cogiz – Produces natural gas by-products. |
| Major Oil/Gas Ports | Arzew (Algeria's largest crude oil and natural gas export facility), Skikda, Algiers, Annaba, Oran, Bejaia, plus the Tunisian facility of La Skhirra. |
| Foreign Company Involvement | Agip, Anadarko, BHP Billiton, BP, Cepsa, Eni, Gaz de France, Gulf Keystone, Maersk, Petronas, Repsol, Rosneft, Statoil, Talisman, Total. |
| Major Oil Fields | Hassi Messaoud, Hassi Berkine, Ourhoud, Bir Rebaa, Gassi El Agreb/Zotti, Menzel Ledjmet |
| Major Natural Gas Fields | Hassi R'Mel, Rhourde Nouss, Rourde Nouss Sud-Est, Rhourde Adra, Rhourde Chouff, Rhourde Hamra fields. |
| Major Crude Oil Export Pipelines | 498-mile and 511-mile parallel lines Haoud el Hamra-Arzew; 415-mile Haoud el Hamra-Bejaia; 482-mile In Amenas-La Skhirra, Tunisia; 400-mile Haoud el Hamra- Skikda |
| Major Refineries (capacity, bbl/d) | Naftec-Skikda (300,000), Naftec-Algiers (60,000), Naftec-Arzew (60,000), Naftec-Hassi Messaoud (30,000) |

* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power.

**GDP figures from Global Insight estimates based on purchasing power parity (PPP) exchange rates.

Links

EIA Links

[EIA: Algeria Country Energy Profile](#)

[EIA: International Energy Statistics](#)

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](#)

[Algerian Mission to the UN](#)

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

Non-Governmental Organizations

[Infoplease: Algeria](#)

[African Oil Journal](#)

[Anadarko](#)

[BHP](#)

[British Petroleum](#)

[Conoco Phillips](#)

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Sources

Africa Energy Intelligence

African Oil Journal

Agence France Presse

Algeria Press Service

BP Statistical Review of World Energy

Business Monitor

Business Middle East

CIA World Factbook

Global Insight

International Energy Agency

Middle East Economic Survey (MEES)

OPEC Annual Statistical Bulletin

Petroleum Economist

Platts Oilgram News

Reuters

Tenders Info

World Gas Intelligence

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