

## COUNTRY ANALYSIS BRIEFS

# Oman

Last Updated: August 2009

## Background

***Oman is a significant non-OPEC oil exporter.***

Oman's economy is heavily reliant on oil exports for revenue, though diversification into natural gas production has mitigated this to a degree. Roughly two-thirds of Oman's total energy consumption comes from natural gas and the remainder comes from oil, reflecting the country's relative abundance of oil and natural gas reserves. Oman's future domestic energy consumption plans call for increased use of natural gas in energy generation in order to free up more oil for export.

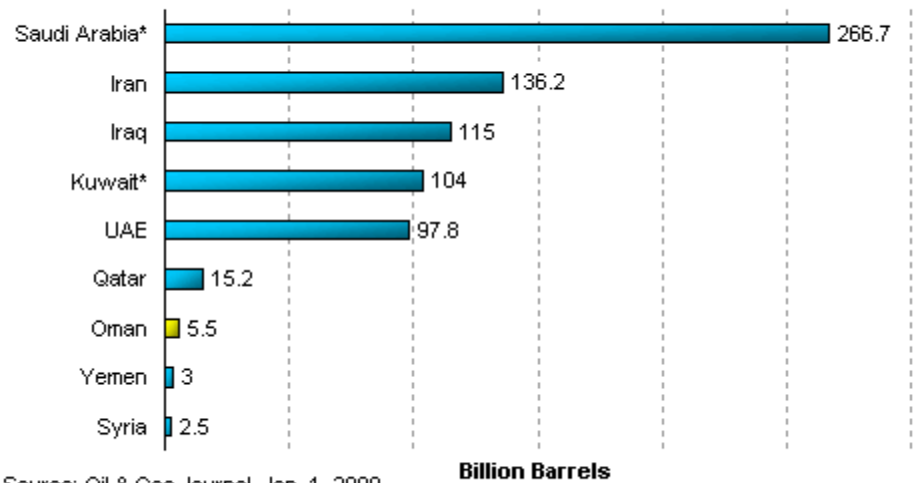


## Oil

***Though Oman's enhanced oil recovery projects have stemmed Oman's decline in production, the sustainability of the projects remains uncertain.***

According to *Oil & Gas Journal*, estimated proven oil reserves in Oman stood at 5.5 billion barrels (bbl) as of January 2009.

### Selected Middle East Proven Oil Reserves, Jan. 1, 2009



Source: Oil & Gas Journal, Jan. 1, 2009

\* including share of Neutral Zone

### Sector Organization

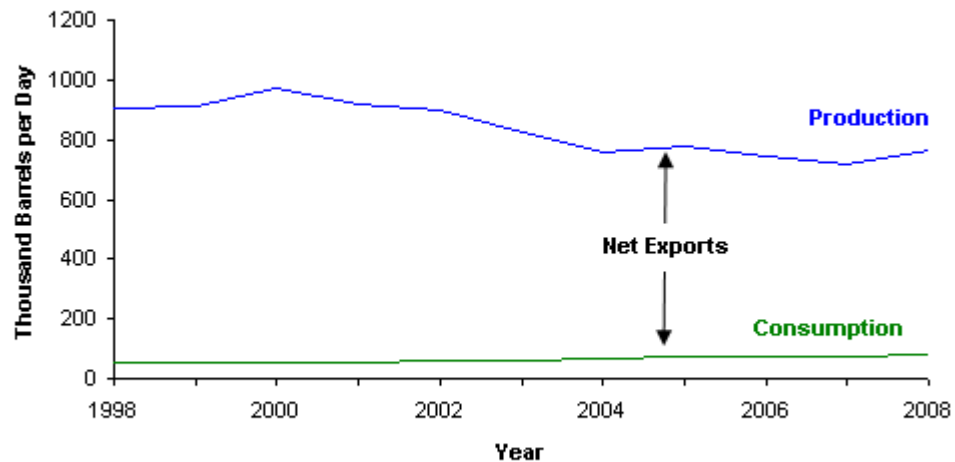
Oman's Ministry of Oil and Gas coordinates the state's role in the country's hydrocarbons sector, although all energy sector developments must receive approval from the Sultan of Oman. Petroleum Development Oman (PDO) accounts for more than 90 percent of the country's oil reserves and 85 percent of production. Aside from the government's 60 percent share, the PDO consortium includes Shell (34 percent), Total (4 percent), and Partex (2 percent). PDO is the leading oil producer in Oman, but several foreign companies are also involved in upstream activities, with Occidental Petroleum holding the largest market share. Oman's government manages its investments in the downstream sector through the state-owned Oman Oil Company (OOC).

### Production

Oman's oil production increased slightly in 2008, after a fairly constant state of decline from the total oil liquids peak of 970,000 barrels per day (bbl/d) in 2000. Oman produced an estimated 760,000 bbl/d of total oil liquids in 2008, about 6 percent more than 2007 levels. Of 2008's output, roughly 669,000 bbl/d was crude oil, 88,000 bbl/d was lease condensate, and the remainder consisted of natural gas plant liquids. Though Oman is experiencing success with its EOR projects (below), EIA forecasts Omani oil production to remain near 2008 levels through 2010, as increased production from EOR projects roughly matches declining production in maturing fields.

Enhanced oil recovery (EOR) projects are the primary reason for Oman's production increase in 2008. Currently underway, the Mukhaizna EOR project, operated by Occidental Petroleum and UAE's Mubadala, began steam-flood operations in 2008. The EOR project has proven successful in raising Mukhaizna's production from 10,000 bbl/d in 2006 to approximately 50,000 bbl/d in 2008. Current plans call for raising Mukhaizna's production to 150,000 bbl/d by 2012.

### Oman's Oil Production and Consumption, 1998-2008\*



Source: EIA International Petroleum Annual Data  
Oman Country Energy Profile (June 2009)

\*2008 consumption is an estimate

PDO has plans for several other EOR schemes. Harweel field production could increase by 40,000 bbl/d with a miscible gas injection EOR project in 2010. Qarn Alam's steam injection EOR project could increase production by 40,000 bbl/d by 2011. The start up dates for these, and other EOR projects, have been delayed several times.

Oman's long-term oil output targets rely heavily upon the success of its EOR projects. The Mukhaizna development plan involves a steam flooding process to recover heavy, viscous oil reserves difficult to recover with conventional methods. Aside from the substantial costs, the technique uses large amounts of water, a relatively expensive and scarce resource in the Persian Gulf. In addition, EOR schemes use substantial amounts of natural gas as a feedstock, leading Oman to redirect some of its natural gas supplies, formerly designated for export, to use at EOR projects around the country.

#### Consumption and Exports

During 2008, Oman consumed an estimated 80,000 bbl/d of oil, with net oil exports estimated at 680,000 bbl/d. Though a significant oil exporter, Oman is not a member of the Organization of the Petroleum Exporting Countries (OPEC). China, Japan, South Korea, and Thailand are the largest importers of Omani crude.

#### Pipelines and Export Terminals

Oman's pipeline system is mostly focused on delivering crude oil to the country's only oil export terminal at Mina al-Fahal, near the capital Muscat. PDO operates the Mina al-Fahal facility, as well as the Main Oil Line that runs to the export terminal. PDO operates approximately 1,000 miles of oil pipelines throughout the country, according to industry sources.

#### Downstream Activities

Oman's crude refining capacity is approximately 222,000 bbl/d. Mina al-Fahal, in operation since 1982, refines around 106,000 bbl/d of crude oil and is managed by the state-owned Oman Refinery Company. Sohar, in operation since 2007, refines about 116,000 bbl/d of crude oil and is managed by Oman Refineries and Petrochemicals Company, which is owned by the Omani Ministry of Finance (75 percent) and OOC (25 percent). Sohar is linked by pipeline to Mina al-Fahal.

Oman continues to pursue the building of a large refinery and petrochemical complex at Al Duqm in southern Oman, which would be geared toward export markets. Under current plans, a joint venture of the Omani government and international investors would build a 200,000–300,000 bbl/d refinery, a crude oil export terminal, and several large petrochemical facilities.

## Natural Gas

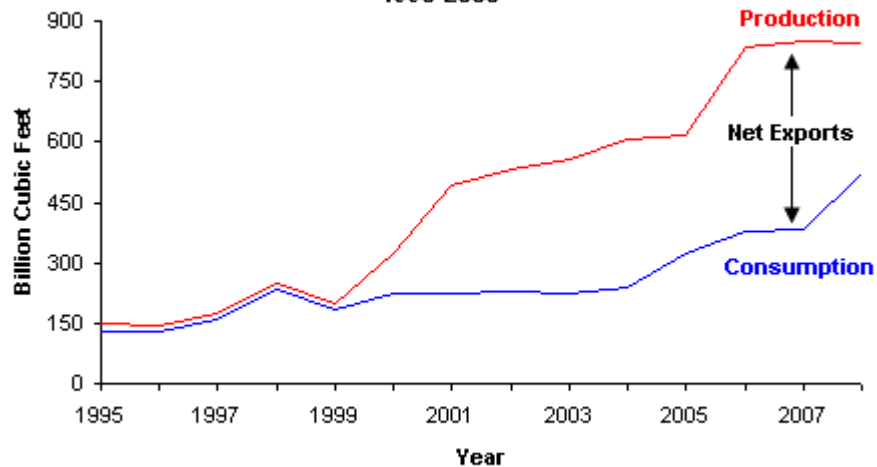
**Oman requires increased natural gas supplies to meet the growth in its domestic consumption as well as its enhanced oil recovery and LNG export plans**

According to *Oil & Gas Journal*, Oman's proven natural gas reserves stood at 30 trillion cubic feet (Tcf) as of January 2009. Oman seeks to increase natural gas production to meet rising domestic demand, provide stock for its enhanced oil recovery projects, as well as increase exports of liquefied natural gas (LNG). The recent economic downturn, combined with improved efficiencies in production, have provided more time for Oman to come up with new supplies to meet these goals.

### Sector Organization

Petroleum Development Oman (PDO) dominates Oman's natural gas upstream sector though the government enlists foreign companies in new exploration and production projects, such as BP, Petronas, and Occidental, especially in the more geologically complex natural gas reservoirs upon which hopes for most of Oman's future production growth are placed. The Oman Oil Company directs state investment in downstream projects through such subsidiaries as the Oman Gas Company (OGC), which operates the country's natural gas transmission and distribution lines. LNG activities are primarily carried out by the Oman Liquefied Natural Gas Company (OLNGC), a consortium led by the central government (51 percent equity), Shell (30 percent), and several other foreign companies.

**Oman's Dry Natural Gas Production and Consumption, 1995-2008\***



Source: EIA Natural Gas Energy Statistics

\*2007 & 2008 are estimates

### Production

Oman's natural gas production in 2008 is estimated at nearly 848 billion cubic feet (Bcf). Industry reporting estimates that by 2013 production volumes could reach 1.2 Tcf. Oman contracts with foreign companies to produce gas from technically challenging fields, such as the "tight gas" believed to be in the Khazzan and Makarem fields in Oman's central interior. The Khazzan and Makarem fields are estimated to contain significant volumes of natural gas; some estimates indicate that the two fields could nearly double Omani reserves. BP is currently developing the fields with the intent of achieving production sometime in 2010.

### Consumption

Enhanced oil recovery, Oman's economic diversification program, and the 2008 oil price boon to the Omani economy all drove natural gas consumption rates higher. Omani consumption in 2008 is estimated at 475 Bcf of natural gas, almost 25 percent more than 2007 consumption levels. Industry reporting estimates that by 2013 consumption volumes could reach 580 Bcf. Oman imports some natural gas via Qatar from the Dolphin pipeline. October 2008 marked the beginning of its Dolphin imports, which currently amount to about 200 million cubic feet per day. In 2008, Oman imported approximately 12 Bcf from the Dolphin pipeline.

### Pipelines

Oman's domestic natural gas pipeline system is controlled by the Oman Gas Company, although OGC has contracted the management of the network to a consortium of private companies. Oman's natural gas network spans about 1,100 miles, bringing supplies from production centers

to the country's LNG terminals, power plants, and other domestic end users.

### Exports

In 2008, liquified natural gas (LNG) was Oman's sole source of natural gas exports. During 2008, Oman exported approximately 385 Bcf of LNG, nearly two-thirds of which went to South Korea, while the remainder went to Japan, India, Taiwan, and Spain. Oman has three LNG production trains with total annual liquefaction capacity of about 485 Bcf. Oman LNG operates two production trains with a combined capacity of approximately 320 Bcf. Oman's third train, Qalhat LNG, has a capacity of approximately 160 Bcf and is operated by a consortium that includes the Omani government (47 percent), OLNLC (36 percent), and several other companies.

## Profile

### Energy Overview

<b>Minister of Oil and Gas</b>	Muhammad bin Hamad bin Sayf al-Rumhi
<b>Proven Oil Reserves (January 1, 2009E)</b>	5.5 billion barrels
<b>Oil Production (2008E)</b>	760,000 barrels per day, of which 88% was crude oil.
<b>Oil Consumption (2008E)</b>	80,000 barrels per day
<b>Crude Oil Distillation Capacity (January 1, 2009E)</b>	85,000 barrels per day
<b>Proven Natural Gas Reserves (January 1, 2009E)</b>	30 trillion cubic feet
<b>Natural Gas Production 2008</b>	848 billion cubic feet
<b>Natural Gas Consumption 2008</b>	475 billion cubic feet
<b>Recoverable Coal Reserves (2007)</b>	None
<b>Coal Production (2007)</b>	None
<b>Coal Consumption (2007)</b>	None
<b>Electricity Installed Capacity (2006)</b>	3.0 gigawatts
<b>Electricity Production (2006)</b>	12.8 billion kilowatt hours
<b>Electricity Consumption (2006)</b>	10.5 billion kilowatt hours
<b>Total Energy Consumption (2006)</b>	0.6 quadrillion Btus*, of which Natural Gas (72%), Oil (28%)
<b>Total Per Capita Energy Consumption (2006)</b>	177.2 million Btus

### Oil and Gas Industry

<b>Organization</b>	Petroleum Development Oman (PDO) controls all oil and natural gas resources. PDO is a partnership between the Omani government (60%), Royal Dutch/Shell (34%), Total (4%), and Partex (2%). Oman Oil Company (OOC) is the investment arm of the Ministry of Petroleum.
<b>Major Oil/Gas Ports</b>	Mina al-Fahal
<b>Selected Foreign Company Involvement</b>	BG, BP, CNPC, Indago Petroleum, Occidental Petroleum, Partex, PTTEP, Shell, Total
<b>Major Oil Fields</b>	Yibal, Qarn Alam, Athel-Marmul, Bahja-Rima-Jalud, Nimr, Karim Cluster, Harweel Cluster, Mukhaizna, Safah
<b>Major Refineries</b>	Mina al-Fahal (106,000 bbl/d); Sohar (116,000 bbl/d)

**(capacity)**

\* 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 – Oman Country Energy Profile](#)

### U.S. Government

[CIA World Factbook - Oman](#)

[State Department Background Note – Oman](#)

[State Department Consular Information Sheet - Oman](#)

[U.S. Embassy in Muscat, Oman](#)

### Foreign Government Agencies

[Oman Ministry in the U.S.](#)

[Ministry of National Economy](#)

[Ministry of Information](#)

[Dolphin Energy](#)

[Occidental Petroleum in Oman](#)

[Oman LNG](#)

[Oman Oil Company](#)

[Oman Refineries & Petrochemicals Company LLC](#)

[Petroleum Development Oman](#)

[Qalhat LNG](#)

[Shell Oman Marketing Company](#)

## Sources

APS Review of Downstream Trends

APS Review of Gas Market Trends

APS Review of Oil Market Trends

Argus Petroleum Weekly

Business Monitor International

CEDIGAZ

CIA World Factbook

Dow Jones Newswires

Economist Intelligence Unit

FACTS Global Energy

Financial Times

Gas Matters Today Asia

Global Insight

Harts Global Refining and Fuels Report

IHS Energy GEPS Reports

International Energy Agency

International Oil Daily

Middle East Economic Digest

Middle East Economic Survey

Middle East Oil & Gas Review

Oil & Gas Journal

Petroleum Economist

Petroleum Intelligence Weekly

Platts Commodity News

Platts Oilgram News

Reuters

Upstream

U.S. Energy Information Administration

World Gas Intelligence

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