

COUNTRY ANALYSIS BRIEFS

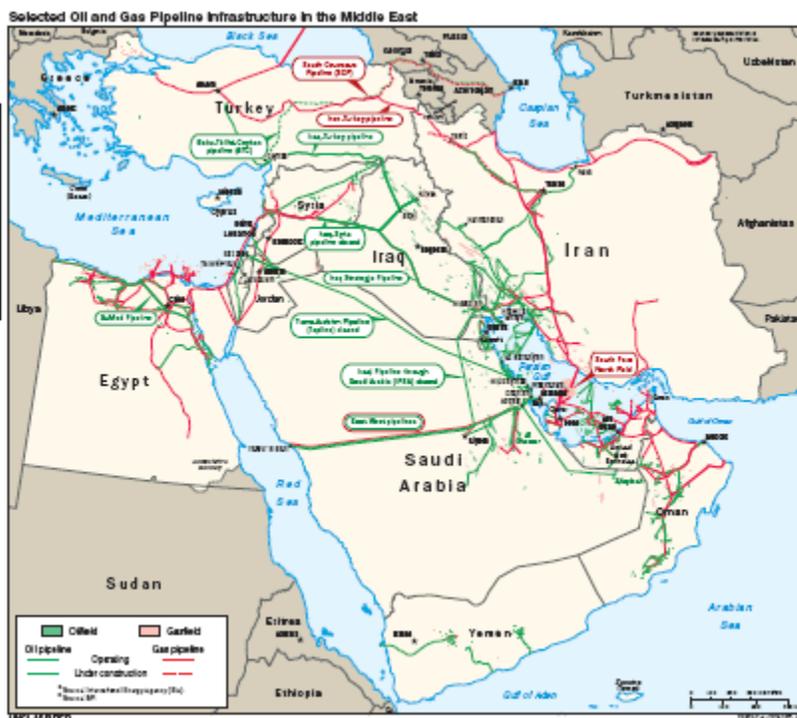
Persian Gulf Region

Last Updated: June 2007

Background

The Persian Gulf produced about 28 percent of the world's oil supply and exported over 18 million bbl/d in 2006.

In 2006, the Persian Gulf countries (Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, and the United Arab Emirates) produced about 28 percent of the world's oil, while holding 55 percent (728 billion barrels) of the world's crude oil reserves. In 2006, the Persian Gulf countries combined exported 18.2 million barrels per day (bbl/d) including about 17 million bbl/d via the Strait of Hormuz representing roughly one-fifth of world oil supply. The group exported the remaining oil via pipelines through Turkey to the Mediterranean and Saudi Arabia to the Red Sea. OECD gross oil imports from Persian Gulf countries averaged about 10.4 million barrels per day (bbl/d) during 2006, accounting for 31 percent of the OECD's total net oil imports. U.S. gross oil imports from the Persian Gulf were 2.2 million bbl/d during 2006, accounting for 17 percent of the US total net oil imports. Besides oil, the Persian Gulf region also has sizeable reserves (2,509 trillion cubic feet -- Tcf) of natural gas, accounting for 41 percent of total proven world gas reserves.



Selected Oil and Gas Pipeline Infrastructure in the Middle East (click for full map)

Oil

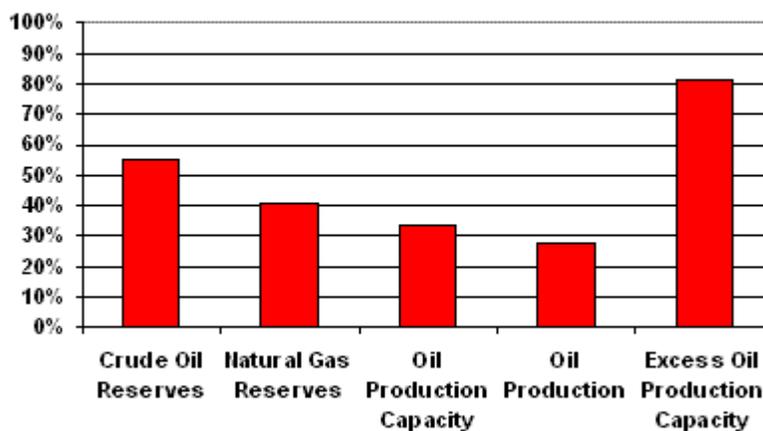
The Persian Gulf region currently produces over 23 million barrels per day of total liquids and is expected to increase its market share over the next two decades.

The Persian Gulf countries contain a significant percentage of the world's oil reserves, production, and capacity. The Persian Gulf countries consistently maintain most of the world's excess oil production capacity. The following key oil data depicts the importance of the Persian Gulf region:

- Proven oil reserves of 728 billion barrels, representing over half (55 percent) of the world's oil reserves at the end of 2006 (*Oil and Gas Journal*);
- Oil production capacity of 25.4 million bbl/d (33 percent of the world total) at the end of 2006
- Total oil production of 23.6 million bbl/d in 2006
- About 2.4 - 2.9 million bbl/d of excess world oil production capacity as of March 2007, of which 1.9 to 2.4 million bbl/d was located in Saudi Arabia and most of the remainder (0.5 million bbl/d) located in other Persian Gulf countries such as Kuwait and the United Arab

Emirates.

Persian Gulf as a Percent of World (2006)



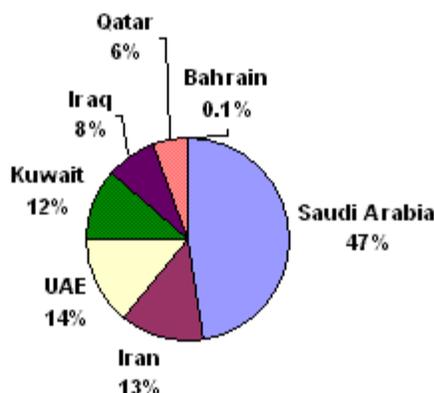
Sources: *Oil and Gas Journal* and *EIA Short Term Energy Outlook*

In 2006, the Persian Gulf countries had estimated net oil exports of 18.2 million bbl/d of oil. Saudi Arabia exported the most oil of any Persian Gulf country in 2006, with an estimated 8.7 million bbl/d. Also, Iran had estimated net exports of about 2.5 million bbl/d, followed by the United Arab Emirates (2.5 million bbl/d), Kuwait (2.2 million bbl/d), Iraq (1.4 million bbl/d), Qatar (1.0 million bbl/d), and Bahrain (0.02 million bbl/d).

Persian Gulf Countries Petroleum Statistics (2006)					
Country	Reserves (Total Liquids - billion bbl)	Capacity (Total Liquids - Million bbl/d)	Production (Total Liquids - Million bbl/d)	Consumption (Total Liquids - Million bbl/d)	Net Exports (Total Liquids) Million bbl/d
Saudi Arabia	262.3	12.1	10.7	2.1	8.7
Iran	136.3	4.3	4.1	1.6	2.5
Iraq	115.0	2.0	2.0	0.6	1.4
Qatar	15.2	1.2	1.1	0.1	1.0
UAE	97.8	3.1	2.9	0.4	2.5
Kuwait	101.5	2.8	2.7	0.5	2.2
Bahrain	0.1	0.1	0.05	0.03	0.02
Total	728.0	23.6	23.6	5.3	18.2

Source: EIA Short Term Energy Outlook

Persian Gulf Total Net Oil Exports by Country - 2006



Source: EIA Short Term Energy Outlook

According to the Energy Information Administration's *International Energy Outlook 2007*, Persian Gulf oil production is expected to moderately grow and reach 26 million bbl/d by 2015, nearly 30 million bbl/d by 2020, and over 38 million bbl/d by 2030, compared to over 23 million bbl/d in 2006. This would increase the share of Persian Gulf oil production to 33 percent of the world total by 2030, up from 28 percent in 2006.

Natural Gas

The Persian Gulf region, particularly Qatar and Iran, holds significant reserves of natural gas, and the region exports about 18 percent of the world's LNG production.

The Persian Gulf region also contains huge reserves (2,509 Tcf) of natural gas amounting to over 40 percent of the world's total. Iran, Qatar, Saudi Arabia, and the United Arab Emirates holds the world's second, third, fourth, and fifth-largest reserves (behind Russia), respectively. Persian Gulf natural gas will become increasingly important in coming years, as both domestic gas consumption and gas exports (by pipeline and also by liquefied natural gas - LNG) increase.

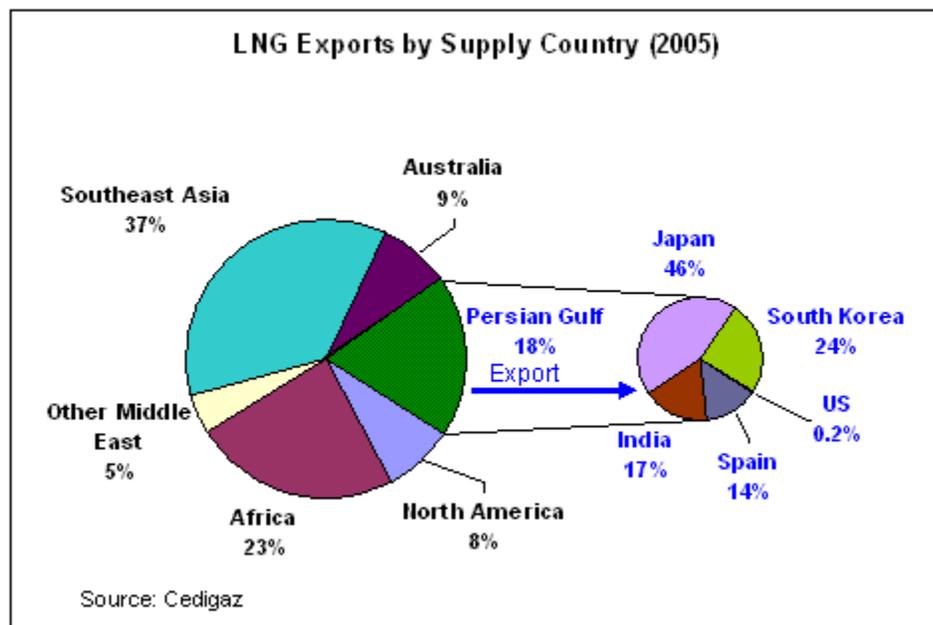
The main LNG exporters from the Persian Gulf are Qatar and the United Arab Emirates sending out about 18 percent of world LNG shipments in 2005 according to Cedigaz. The region's market share could increase in the next decade as Qatar expands its LNG capacity. Iran is another potential LNG exporter, and its South Pars gas field contains at least 280 Tcf of reserves. Development of South Pars is Iran's largest energy project and has already attracted around \$15 billion in investment. However, development has been delayed by various technical, contractual, and political issues.

Most of Qatar's natural gas proven reserves of 910 trillion cubic feet (Tcf) is located in the offshore North Field, which is the largest known non-associated natural gas field in the world. The Qatari government believes that the country's economic future lies in developing this vast natural gas potential.

Persian Gulf Countries Natural Gas Statistics				
Country	Reserves (Natural Gas – Tcf) 2006	Production (Dry Natural Gas - Tcf) 2005	Consumption (Tcf) 2005	LNG Exports (Tcf) 2005
Saudi Arabia	240	2.5	2.5	-
Iran	974	3.6	3.6	-
Iraq	112	>0.1	>0.1	-
Qatar	910	1.6	0.7	1.0
UAE	214	1.7	1.5	0.3
Kuwait	55	0.4	0.4	-
Bahrain	3	0.4	0.4	-

Total	2,509	10.3	9.1	1.3
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Source: Cedigaz



Export Routes

The Straits of Hormuz play an exceedingly important role in Persian Gulf oil and gas transportation, and currently few alternate routes exist to move these products to global markets.

Roughly half of the world's top 20 busiest crude oil-exporting ports are located in the Persian Gulf. There are only a handful of conduits allowing oil exports to leave the Persian Gulf and bypass the Straits of Hormuz.

Straits of Hormuz

In 2006, the vast majority (about 93 percent) of oil exported from the Persian Gulf transited by tanker through the [Straits of Hormuz](#), located between Oman and Iran. The Straits of Hormuz is a 600-mile-long body of water, which separates Iran from the Arabian Peninsula, and one of the most strategic waterways in the world due to its importance in world oil transportation. The Strait of Hormuz consists of 2-mile wide channels for inbound and outbound tanker traffic, as well as a 2-mile wide buffer zone and at its narrowest point is only 34 miles wide. Oil flows through the Straits of Hormuz account for roughly two-fifths of all global crude oil and petroleum product tanker shipments. The approximate 17 million bbl/d of crude oil and refined products transiting the Straits of Hormuz go both east to Asia (especially Japan, China, and India) and west (via the Suez Canal, the Sumed pipeline, and around the Cape of Good Hope in South Africa) to Western Europe and the United States. In addition, over 3.5 Bcf/d of natural gas travels through the Straits of Hormuz via LNG tankers in route to Asia, Europe, and North America.

Alternative Oil Export Routes

Currently, there are few alternate routes to the Straits of Hormuz for exporting Persian Gulf oil. Some of the options described below need repairs and upgrades or are closed due to political, economic, or geopolitical issues in the area.

Saudi Arabia

East-West Pipeline (Petroline). The 745-mile East-West Pipeline is the most viable alternate route to ship Saudi oil circumventing the Strait of Hormuz and has a capacity of approximately 5 million bbl/d. The pipeline traverses Saudi Arabia from Abqaiq to the port of Yanbu on the Red Sea. The Saudis expanded the East-West Pipeline in part to maintain Yanbu as a strategic option to Gulf port facilities in the event that exports were blocked from passing through the Straits of Hormuz in the Persian Gulf. The East-West Pipeline is utilized at less than half capacity, as shipments from Yanbu add up to five days roundtrip travel time for tankers through the Bab al-

Mandab strait to major customers in Asia.

Abqaiq-Yanbu Natural Gas Liquids (NGL) Pipeline. Running parallel to the East-West Pipeline is the 290,000-bbl/d Abqaiq-Yanbu NGL Pipeline, serving Yanbu's petrochemical plants. After upgrades in 2008, the pipeline capacity will increase to 555,000 bbl/d.

Trans-Arabian Pipeline (Tapline). The Tapline from Qaisumah to Sidon, Lebanon, was mothballed in 1984 because of turmoil in Lebanon and economic reasons. Saudi Arabia terminated the portion to Jordan in 1990, as a result of the Jordanian support for Iraq during the Gulf crisis. In 1983, the Tapline's Lebanese section was closed altogether. Since then, the Tapline had been used exclusively to supply oil to Jordan, although Saudi Arabia terminated this arrangement to display displeasure with perceived Jordanian support for Iraq in the 1990/91 Gulf crisis. The pipeline's operational capacity is approximately 50,000 bbl/d, or a fraction of the design capacity of 500,000 bbl/d.

Iraq

Iraqi Pipeline through Saudi Arabia (IPSA) Pipeline. The IPSA pipeline, which runs from southern Iraq south through Saudi Arabia and then parallel to the East-West Pipeline westbound to the Red sea north of Yanbu, was closed in August 1990 after the Iraqi invasion of Kuwait. In June 2001, Saudi Arabia expropriated the IPSA line and converted the line to carry natural gas to Yanbu though it could be another outlet for about 1.65 million bbl/d of oil.

Strategic Pipeline. The "Strategic Pipeline" built by Iraq in 1975 is a north-south system, consisting of a reversible 1.4 million bbl/d pipeline system. The pipeline system contains two parallel lines, and capacity on the first pipeline is 700,000 bbl/d. Work on the second parallel line was ceased during the Gulf War of 1990/91. The system allows for export of northern Kirkuk crude from the Persian Gulf and for southern Rumaila crudes to be shipped through Turkey, though the system needs rehabilitation before it can become operational.

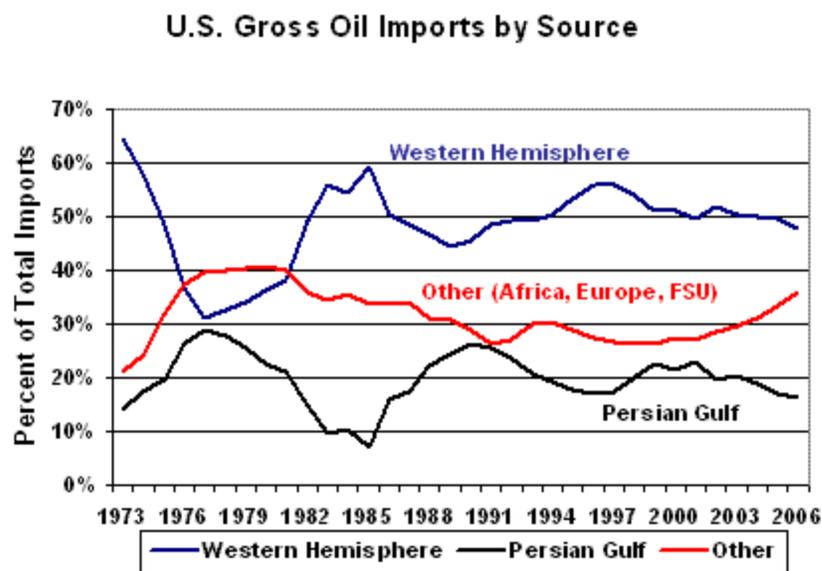
Iraq-Turkey Pipeline. The 600-mile Iraq-Turkey Pipeline from Iraq's Kirkuk oil region to the Turkish port of Ceyhan has been operating only sporadically during the past few years due to security issues. The system consists of two parallel lines, one with a design capacity of 1.1 million bbl/d and the second with an optimal capacity of about 500,000 bbl/d. Usable capacity on the line in early 2007 is believed to be roughly 300,000 bbl/d with significant repairs and upgrades still required.

Iraq-Syria-Lebanon Pipeline (ISLP). The ISLP connects the Kirkuk oil region to Syria's port of Banias. Iraq used this pipeline between 2001 and 2003 to transport 200,000 bbl/d of oil from southern Iraq to Syrian refineries; however pipeline flows have stopped since the US war began in 2003. The system consisted of two pipelines with a combined capacity of 700,000 bbl/d and used to carry 450,000 to 600,000 bbl/d.

Oil Exports

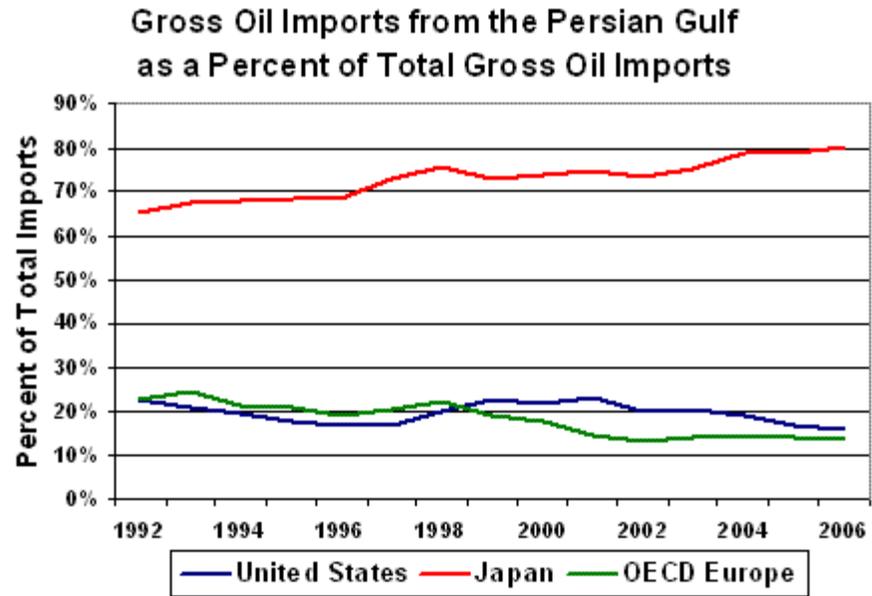
The U.S. received about 18 percent of its net oil liquids imports in 2006 from the Persian Gulf region.

U.S. gross oil imports (mostly crude) from the Persian Gulf averaged to 2.2 million bbl/d during 2006. The majority of Persian Gulf oil and petroleum products imported by the United States came from Saudi Arabia (66 percent), with significant amounts also coming from Iraq (25 percent), Kuwait (8 percent), and small amounts (less than 1 percent total) from Qatar and the United Arab Emirates. Iraqi total liquids exports to the United States reached 553,000 bbl/d in 2006. Saudi exports fell from 1.54 million bbl/d in 2005 to 1.46 million bbl/d in 2006. Overall, the Persian Gulf accounted for about 18 percent of U.S. net oil imports and approximately 11 percent of U.S. oil demand in 2006.



Western Europe (defined as European countries belonging to the Organization for Economic Cooperation and Development - OECD) averaged 2.8 million bbl/d of oil imports from the Persian Gulf during 2006, a decrease of less than 0.1 million bbl/d from 2005. The largest share of Persian Gulf oil exports to Western Europe came from Saudi Arabia (44 percent), with significant amounts also coming from Iran (33 percent), Iraq (13 percent), and Kuwait (7 percent).

Japan averaged 4.4 million bbl/d of net oil imports from the Persian Gulf during 2006. Japan's dependence on the Persian Gulf for its oil supplies increased sharply since the low point of 57 percent in 1988 to a high of 83 percent in 2006. About 35 percent of Japan's Persian Gulf imports in 2006 came from Saudi Arabia, 29 percent from the United Arab Emirates, 12 percent from Iran, 12 percent from Qatar, 10 percent from Kuwait, and over 1 percent from Bahrain and Iraq combined. Japan's oil imports from the Persian Gulf as a percentage of demand continued to rise to new highs, reaching 80 percent in 2006.



Source: EIA International Petroleum Monthly

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