

COUNTRY ANALYSIS BRIEFS

Saudi Arabia

Last Updated: January 2011

Background

Saudi Arabia has approximately one-fifth of the world's proven oil reserves, and is the largest oil producer and exporter of total petroleum liquids in the world.

Overview

Saudi Arabia was the world's largest producer and exporter of total petroleum liquids in 2010, and the world's second largest crude oil producer behind Russia. Saudi Arabia's economy remains heavily dependent on crude oil. Oil export revenues have accounted for 80-90 percent of total Saudi revenues and above 40 percent of the country's gross domestic product (GDP).

Saudi Arabia has been shifting its focus beyond increasing its upstream oil production since Saudi Aramco said that it had reached its target production capacity of 12 million barrels per day. In addition, its spare oil production capacity is well above Saudi Arabia's stated target of 1.5-2 million barrels per day. Subsequently, Saudi Arabia is moving to diversify its economy by expanding its refining, petrochemicals, and mineral products industries (such as high-value fertilizers).

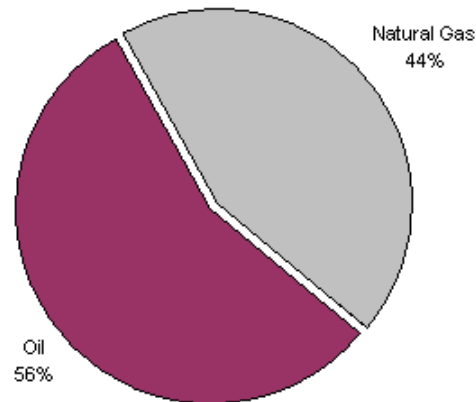
Saudi Arabia's hydrocarbon sector operations are dominated by the state-owned oil company, Saudi Aramco. Saudi Aramco is the world's largest oil company in terms of proven reserves and production of hydrocarbons. Saudi Arabia's [Ministry of Petroleum and Mineral Resources](#) and the Supreme Council for Petroleum and Minerals have oversight of the sector and Saudi Aramco directly. The Supreme Council, which is comprised of members of the royal family, industry leaders and government ministers, is responsible for petroleum and natural gas policy-making, including contract review, as well as Saudi Aramco's strategic planning. The Ministry is responsible for national planning in the area of energy and minerals, including petrochemicals.



Energy Consumption

Saudi Arabia is the largest consumer of petroleum in the Middle East, particularly in the area of transportation fuels and direct burn for power generation. Domestic consumption growth has been spurred by the economic boom due to historically high oil prices and large fuel subsidies. In 2008, Saudi Arabia was the 15th largest consumer of total primary energy, of which almost 60 percent was petroleum-based and the rest natural gas. Saudi Arabia is moving forward with plans to produce power from nuclear reactors by 2020 in order to meet domestic power needs and to free up oil and natural gas for export and higher-end uses than direct burn for power generation. In the interim, Saudi Arabia is participating in the Gulf Cooperation Council's efforts to link the power grids of member countries in order to reduce shortages during peak power periods.

**Total Energy Consumption in Saudi Arabia, by Type
(2008)**



Source: EIA International Energy Statistics 2008

Oil

Saudi Arabia has one-fifth of the world's proven oil reserves, and maintains the world's largest oil production capacity.

Reserves

According to the Oil and Gas Journal, Saudi Arabia contains approximately 260 billion barrels of proven oil reserves (plus 2.5 billion barrels in the Saudi-Kuwaiti shared "Neutral" Zone), amounting to around one-fifth of proven, conventional world oil reserves. Although Saudi Arabia has around 100 major oil and gas fields (and more than 1,500 wells), over half of its oil reserves are contained in only eight fields, including the giant 1,260-square mile Ghawar field (the world's largest oil field, with estimated remaining reserves of 70 billion barrels). The Ghawar field alone has more proven oil reserves than all but six other countries.

Consumption

Saudi Arabia is the largest oil consuming nation in the Middle East. In 2009, Saudi Arabia consumed approximately 2.4 million bbl/d of oil, up 50 percent since 2000, due to strong economic and industrial growth and subsidized prices. Contributing to this growth is rising direct burn of crude oil for power generation, which reaches 1 million bbl/d during summer months, and the use of natural gas liquids (NGLs) for petrochemical production. Khalid al-Falih, CEO of Saudi Aramco, warned that domestic liquids demand was on a pace to reach over 8 million bbl/d (oil equivalent) by 2030 if there were no improvements in energy efficiency and current trends continued.

Production

Saudi Arabia maintains the world's largest crude oil production capacity, estimated by U.S. Energy Information Administration (EIA) at over 12 million bbl/d at end-2010. Over 2 million bbl/d of capacity was added in 2009 with the addition of increments at Khurais, AFK (Abu Hadriya, Fadhiil and Khursaniyah), Shaybah, and Nu'ayyim.

For 2010, the EIA estimates that Saudi Arabia produced on average 10.2 million bbl/d of total oil, comprising crude oil, lease condensate, natural gas liquids, and other liquids (including half of the Saudi-Kuwaiti Neutral Zone's 600,000 bbl/d). In addition to 8.4 million bbl/d of crude oil, Saudi Arabia produced around 1.8 million bbl/d of natural gas liquids (NGLs) and other liquids, which are not subject to OPEC quotas. Saudi Arabia, a leading world producer of NGLs, has experienced a rise in demand for NGLs from developing countries, including India (the leading export destination), where it is used for cooking and transportation.

Saudi's main producing fields in 2010 included:

- Ghawar (onshore): Ghawar alone accounts for about half of Saudi Arabia's total oil production capacity, and is the world's largest oil field. It produces more than 5 million bbl/d of Arabian Light crude. Ghawar also produces more than every other country except Russia and the United States.
- Safaniya (offshore): The third largest oil field in the world in terms of production, and the largest offshore with production capacity of 1.5 million bbl/d.
- Khurais (onshore): The largest oil field brought on globally in 2009, it has a capacity of 1.2 million bbl/d of Arab Light crude.
- Qatif (onshore): Capacity 0.5 million bbl/d of Arab Medium crude.
- Shaybah (onshore): Capacity 0.5 million bbl/d of Arab Extra Light crude.
- Zuluf (offshore): Produces approximately 450,000 bbl/d of Arab Medium crude.
- Abqaiq (onshore): Produces approximately 400,000 bbl/d Arab Extra Light crude.

Challenges to the Upstream Development Program

One challenge the Saudis face in achieving their strategic vision to add production capacity is that their existing fields experience 6 to 8 percent annual "decline rates" on average (as reported by *PlattsOilgram in 2006*) in existing fields, meaning that the country needs around 700,000 bbl/d in additional capacity each year just to compensate for natural decline. Decline estimates for Saudi Arabia vary widely, however. The Ministry of Petroleum maintains that decline rates in Saudi Arabia are around 2 percent annually. Saudi Aramco has stated that it will also conduct additional drilling at existing fields in order to help compensate for the natural declines from the mature fields.

Saudi Aramco, Saudi Arabia's national oil company, estimates that the average total depletion for Saudi oil fields is 29 percent, with Abqaiq (the oldest) 74 percent depleted, the giant Ghawar field having produced 48 percent of its proven reserves and the younger Shaybah, just 5 percent depleted. Aramco also reports that Saudi oil reserves are likely underestimated, not overestimated, although some analysts have disputed Aramco's optimistic assessments of Saudi oil reserves and future production. The Saudi Oil Minister, al-Naimi, has stated that Saudi Arabia could add as much as 200 billion barrels of oil to proven reserves after an extended period of investment and exploration.

Saudi-Kuwaiti Neutral Zone; Bahrain

The Saudi-Kuwait Divided Zone or the "Neutral Zone", 2230 square miles between the borders of Saudi Arabia and Kuwait that was left undefined in 1922, contains an estimated 5 billion barrels of proven oil reserves, shared between the two countries, from which approximately 600,000 bbl/d is produced. (See map)

Map of the Saudi – Kuwaiti Neutral Zone



Source: EIA, CIA World Factbook

Saudi Arabia and Kuwait are planning to increase capacity in the Neutral Zone to about 630,000 bbl/d. The increases are expected to come from the offshore area where steam injection technology will be employed.

Within the Neutral Zone, Japan's Arabian Oil Co. (AOC) traditionally operated the two offshore fields of Khafji and Hout with 300,000 bbl/d in production, but in February 2000, AOC lost the concession, and Aramco took over operation of the former AOC fields (in January 2003, AOC reached an agreement with Kuwait on the right to purchase at least 100,000 bbl/d of crude for the next 20 years from Khafji). ChevronTexaco operates three onshore fields (Wafra, Humma, and South Umm Gudair) in the Neutral Zone under a 60-year license that was renewed in July 2008. These fields have 2 billion barrels of proven reserves and total production of about 260,000 bbl/d of Arab Heavy oil. Finally, Bahrain and Saudi Arabia share the 300,000 bbl/d production of the Abu Safah offshore field.

Processing

Saudi Aramco operates the world's largest oil processing facility and crude stabilization plant in the world at Abqaiq, in eastern Saudi Arabia, with a crude processing capacity of more than 7 million bbl/d. The plant processes the majority of Arabian Extra Light and Arabian Light crude oils, as well as NGLs. The facility's infrastructure includes pumping stations, Gas Oil Separation Plants

(GOSPs), hydro-desulphurization units, and an extensive network of pipelines that connects the plant to the ports of Ras al-Juaymah, Ras Tanura and Yanbu (for NGLs). Nearly two-thirds of Saudi crude is processed at Abqaiq before export or delivery to refineries. The facility was the target of a terrorist attack in 2006 (see Security Issues Section).

Refining/Petrochemicals

According to *Oil and Gas Journal*, Saudi Arabia has seven domestic refineries, with a combined crude throughput capacity of about 2.1 million bbl/d (of which Aramco's share is approximately 1.1 million bbl/d). The Saudi Aramco development plan calls for a \$70-billion investment in the sector, increasing domestic refining capacity to 3 million bbl/d and international holdings by at least 1-2 million bbl/d by 2011, particularly in an effort to meet requirements of the fast-growing Asian market. Several of these new refineries will be integrated with large petrochemical complexes, in what has been described as the creation of petrochemical cities. Saudi Aramco has begun a Saudization initiative (General Engineering Services Plus, or GES+) to improve Saudi technical capability in these projects. Planned refineries or refineries under development include:

- Saudi Aramco's 400,000 bbl/d joint venture export refinery with Total in Jubail, which is expected to be fully operational by end-2013. It will run mainly Arab Heavy crude, and maximize production of diesel and jet fuel.
- Saudi Aramco 400,000 bbl/d Yanbu refinery project, scheduled for startup at end-2014. Conoco-Phillips was originally to have been a joint venture partner in this project, which will process heavy oil from the planned Manifa project.
- Saudi Aramco has decided to relocate its joint petrochemical project with Dow Chemical from Ras Tanura to Jubail.
- Saudi Aramco is moving ahead with its first venture into the petrochemical business, a \$10 billion expansion at its integrated PETRORabigh Refinery and petrochemical joint venture with Sumitomo.
- Saudi Aramco is proposing to re-launch its 400,000 bbl/d Jazan refinery project without any petrochemicals component.

In the United States, Saudi Aramco and partner Royal Dutch/Shell own three Motiva joint-venture refineries in Louisiana and Texas. The three facilities currently have a total capacity of about 740,000, or approximately 5 percent of the U.S. refining market. Saudi Aramco owns 50 percent of Motiva though a subsidiary, Saudi Refining.

Security Issues

The Saudi petroleum pipeline and export network (and energy sector in general) has been a terrorist target. In February 2006, Saudi security prevented an attempted suicide bomb attack at the Abqaiq petroleum processing facility, after Al-Qaeda leadership called for renewed attacks against the country's economic backbone. Nevertheless, energy infrastructure remains well-protected. Following the 2006 incident, the government increased the National Guard and military security force to approximately 20,000, in addition to the 5,000 guards employed directly by Aramco. In addition to direct security, Saudi Arabia is known to ensure export security by maintaining "redundancy" (i.e., multiple options for transportation and export) in its oil system, in part as a form of indirect security against any one facility being disabled.

Oil Exports and Shipping

Exports

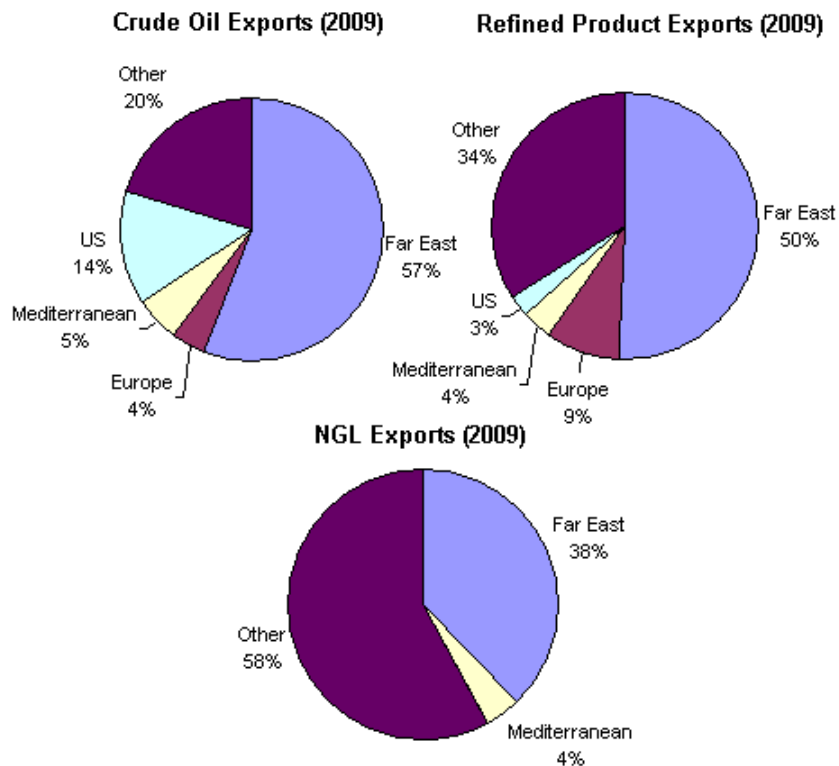
Saudi Arabia exported an estimated 7.3 million bbl/d of petroleum liquids in 2009 (7.5 million bbl/d in 2010), the majority of which was crude oil. Asia now receives an estimated 55 percent of Saudi Arabia's crude oil exports, as well as the majority of its refined petroleum product and natural gas liquids (NGL) exports.

In 2009, Saudi Arabia exported an average of 1 million bbl/d of petroleum liquids to the United States, (down from 1.5 million bbl/d in 2008) accounting for 9 percent of total U.S. petroleum imports. For this time period, Saudi Arabia ranked fourth after Canada, Mexico, and Venezuela as a petroleum exporter to the United States. Other major Saudi customers in 2009 included Japan (1.2 million bbl/d), South Korea (850,000 bbl/d), and China (839,000 bbl/d).

In January 2010, Saudi Aramco changed the benchmark that it uses for pricing crude oil exports to the United States. Saudi Aramco had used the West Texas Intermediate (WTI) crude oil price since 1994, but will switch to the Argus Sour Crude Index (ASCI), in part because the ASCI is viewed as being more representative of the U.S. Gulf Coast sour crude market.

The following series of graphs break out the percentage of exports by destination for the three main categories of Saudi oil exports:

Saudi Arabia is the world's largest (net) oil exporter and is a key oil supplier to the United States, Europe and Asia.



Source: Saudi Aramco, 2009 Annual Review

Major Ports

Saudi Arabia has three primary oil export terminals:

- The Ras Tanura complex has approximately 6 million bbl/d capacity, and the world's largest offshore oil loading facility. It includes the 2.5-million bbl/d port at Ras Tanura. More than 75 percent of exports are loaded at the Ras Tanura Facility.
- The 3 to 3.6-million bbl/d Ras al-Ju'aymah facility on the Persian Gulf.
- The Yanbu' terminal on the Red Sea, from which most of the remaining 25 percent is exported, has loading capacity of approximately 4.5 million bbl/d crude and 2 million bbl/d for NGL and products. The facility is reportedly not used to full capacity.

These and a dozen other smaller terminals throughout the country, appear capable of exporting up to 14-15 million bbl/d of crude and refined products, 3-4 million bbl/d higher than Saudi Arabia's current crude oil production capacity.

Major Domestic Petroleum Pipelines

Saudi Aramco operates more than 9,000 miles of petroleum pipelines throughout the country, including two major pipelines:

- The 745-mile, 5 million-bbl/d East-West Crude Oil Pipeline (Petroline), has been operated by Saudi Aramco since 1984 (when it took over from Mobil), and is used mainly to transport Arabian Light and Super Light from Abqaiq refineries in the Eastern Province to Red Sea terminals (Yanbu) for export to European markets. Reportedly, the Saudis expanded the Petroline 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 Petroline 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.
- Running parallel to the Petroline is the 290,000-bbl/d Abqaiq-Yanbu' natural gas liquids (NGL) pipeline, which serves Yanbu's petrochemical plants.

Also built in the 1980s was a 236-mile multi-products line between Dhahran in the Eastern Province and Riyadh and a 220-mile smaller multi-product line between Riyadh and Qassim to the north.

International Petroleum Pipelines

Saudi Aramco does not operate any major functioning international pipelines. The Trans-Arabian Pipeline (Tapline) from Qaisumah to Sidon, Lebanon, completed in 1974, has been mothballed, in part, since 1984 (the portion to Jordan was closed in 1990, through there has been talk of

reopening this portion). Also, a 1.65 million-bbl/d, 48-inch Iraqi Pipeline across Saudi Arabia (IPSA), which runs parallel to the Petroline from pump station #3 (there are 11 pumping stations along the Petroline) to the port of Mu'ajjiz, just south of Yanbu, was built in 1989, but closed indefinitely following the August 1990 Iraqi invasion of Kuwait. In June 2001, Saudi Arabia seized ownership of IPSA. Theoretically, IPSA could be used for Saudi oil transport to the Red Sea, although the Saudis have reported that the pipeline has been converted to carry gas as part of the Master Gas System. A private Saudi company has offered to rehabilitate the IPSA oil pipeline, but this idea has not gone beyond the proposal state.

The only functioning international crude pipeline system is a 60-year old complex of four small submarine pipelines carrying Arabian Light crude from the Abu Saafra and Dammam fields to Bahrain. The pipelines range from 207,000 to 250,000 bbl/d capacity. Reportedly, this aging pipeline will be decommissioned after the construction of the "New Arabia" pipeline, a 71-mile, 350,000-450,000-bbl/d capacity feed running between Abqaiq and Bahrain's refinery at Sitra.

Click [HERE](#) for a map of major pipeline networks in the Middle East.

Shipping

Saudi Aramco's shipping subsidiary [Vela International Marine Ltd.](#) operates the sixth largest fleet of supertankers in the world, including 24 VLCCs (very large crude carriers), one Aframax class vessel, and four product tankers. In addition to tankers, Aramco owns or leases oil storage facilities around the world, in places like Rotterdam, Sidi Kerir (the Sumed pipeline terminal on Egypt's Mediterranean coast), South Korea, the Philippines, and the Caribbean.

The [National Shipping Company of Saudi Arabia](#) (NSCSA) is a public company, although the Public Investment Fund (PIF) of the Saudi government holds 28 percent, while the remaining 72 percent is publicly traded. The NSCSA fleet has a total of eight VLCCs, with plans to increase the fleet to 17 VLCCs.

Natural Gas

Reserves

According to the *Oil and Gas Journal*, Saudi Arabia has proven natural gas reserves estimated at 275 trillion cubic feet (Tcf), fourth largest in the world behind Russia, Iran, and Qatar. Over 12 Tcf was added in 2010.

However, about 50-60 percent of the natural gas in Saudi Arabia is "associated" with petroleum deposits, or found in the same fields as crude oil, and plans to increase production of this type of gas remain linked to an increase in oil production. About 57 percent of Saudi Arabia's proven natural gas reserves consist of associated gas at the giant onshore Ghawar field and the offshore Safaniya and Zuluf fields. Of the remaining 100 tcf of free (non-associated) natural gas, 75 percent is sour (high sulfur) or in tight formations, leaving only 25 tcf of conventional natural gas deposits that are easy to develop.

Production and Consumption

Rapid reserve development is necessary for Saudi Arabia's plans to fuel the growth of the petrochemical sector, as well as for power generation and for water desalination. Saudi Arabia had set a goal of meeting 10 percent of global petrochemical demand by 2015, with natural gas a primary feedstock. According to Saudi Aramco forecasts, natural gas demand in the kingdom is expected to more than double to 14.5 billion cubic feet per day (Bcf/d) by 2030, up from an estimated 7.1 Bcf/d in 2007. In order to free up petroleum for export, all current and future gas supplies (except natural gas liquids) reportedly remain earmarked for use in domestic industrial consumption and desalination.

However, natural gas production (estimated at 2.7 Tcf in 2007 remains limited, as soaring costs of production, exploration, processing and distribution of gas have squeezed supply, while an estimated 13 to 14 percent of total production is lost to venting, flaring, reinjection and natural processes according to OPEC and other sources. Saudi Arabia has no net imports or exports of natural gas. According to Saudi Aramco, only 15 percent of Saudi Arabia has been "adequately explored for gas".

Upstream Developments and Strategy

Because most of its natural gas reserves are from associated gas, Saudi Arabia is constrained from boosting its gas production from these reserves because of OPEC crude oil production restraints. To meet growing domestic needs, the Petroleum Ministry and Saudi Aramco announced a \$9-billion strategy to add 50 Tcf of non-associated reserves by 2016 through new discoveries (and potentially another 50 Tcf of associated reserves). According to Saudi Aramco, exploration and development will also commence in non-producing areas such as the Red Sea, northern and western Saudi Arabia, and the Nafud basin, north of Riyadh.

Upstream Developments by Saudi Aramco

For more than a decade, Saudi Aramco, the world's seventh largest natural gas producer, has aggressively explored for additional reserves to meet growing demand, although success has been limited.

Saudi Aramco has focused on offshore fields in the Persian Gulf in its current 5-year plan to expand its natural gas production. Three non-associated gas fields have been targeted:

- The 1.8 Bcf/d Karan gas field, discovered in April 2006, is Saudi Arabia's first offshore non-associated gas development. Karan is expected to come online in 2011-2012.
- The 1.0 Bcf/d Arabiyah gas field, expected online within 5 years.
- The 0.8 Bcf/d Hasbah gas field, expected online within 5 years.

The Arabiyah and Hasbah fields are believed to contain high-sulfur natural gas that will be sent to be processed at the Kursaniyah gas hub. These high sulfur levels, as well as their offshore location, will make this gas relatively expensive to develop.

In response to these new upstream developments, a major expansion of natural gas and natural gas liquids processing capacity from 9.3 Bcf/d to 12.5 Bcf/d is underway at Khursaniya, Hawiya, Ju'aymah, Yanbu, and Khurais to process increases in production.

To date, Saudi Arabia's efforts have met with limited success. In February 2010, Saudi Aramco announced a new commercial discovery in the northern region with its Jalameed-3 well, the first announcement of a gas discovery since January 2009.

Upstream Activities in the Neutral Zone

Saudi Arabian Chevron has initiated an exploration effort throughout the Neutral Zone that will be focused on natural gas. The natural gas will primarily be used to fuel Chevron's steam-flooding projects to boost oil production in the region.

Upstream Activities in Contested Regions

Another large non-associated offshore natural gas field, Dorra (Durra), is located offshore near Khafji oil field in the Saudi-Kuwaiti Neutral Zone. Plans to develop Dorra have been controversial since the late 1960s, however, because 70 percent is also claimed by Iran (called Arash). In addition, the maritime border between Kuwait and Iran remains un-demarcated. Saudi Arabia reached an agreement with Kuwait in July 2000 to share Dorra output equally, although the Kuwaitis are reportedly trying to purchase the Saudi share. According to Saudi Aramco, the field is estimated to contain non-associated gas reserves of between 35 and 60 Tcf of natural gas, and is under seismic study. The Kuwaiti Ministry of Oil has reported that the goal is to produce initially 600 MMcf/d from Dorra. Kuwait and Iran have intermittently discussed jointly developing the field, although production plans remain undisclosed.

Upstream Activities in the Empty Quarter (Rub Al Khali)

The Saudi domestic natural gas market has traditionally been the sole domain of Saudi Aramco. However, Saudi Arabia allowed international oil and gas companies access to upstream ventures in the empty quarter in an effort to develop non-associated gas to meet rising natural gas demand. Saudi officials had hoped that the effort would produce some 2 Bcf/d by 2011, although success has been limited.

Saudi Arabia has four upstream joint ventures in the Empty Quarter:

- South Rub al-Khali Company, or SRAK (a venture of Saudi Aramco and Royal Dutch/Shell)
- Luksar Energy Limited (a venture of Saudi Aramco and Lukoil)
- Sino Saudi Gas Limited (a venture of Saudi Aramco and Sinopec)
- EniRepSa Gas Limited (a consortium of Saudi Aramco, Eni, and Repsol-YPF)

To date, these ventures have not made significant commercial discoveries. SRAK's 4th unsuccessful well, Kidan-6, was reportedly among the most expensive onshore wells in industry history.

Pricing

In addition to facing domestic supply shortages, Saudi Arabia has also come under pressure internationally for its subsidized natural gas prices. Generally, the price for natural gas for industrial and petrochemical use is set by the ministry at \$0.75 MMBtu, some of the lowest in the Gulf. This low price was set when most of Saudi Arabia's gas production came from inexpensive associated gas, but is inconsistent with the much more expensive high-sulfur gas production coming from offshore fields expected to cost from \$3.50 - \$5.50 MMBtu. The low natural gas price is a challenge to the foreign operators in the Kingdom looking to discover and exploit resources in the Empty Quarter. Saudi Oil Minister Ali al-Naimi has said that he would consider raising the price of domestic natural gas, but not to international levels so long as the price covered production costs and a profit margin.

Downstream Developments - Gas Processing

Saudi Arabia currently has seven gas processing plants with a total gas production capacity of approximately 10 Bcf/d, including 1 million bbl/d of natural gas liquids (NGLs) and approximately 2,700 tons of sulfur at facilities Berri, Shedgum, Uthmaniyah and Hawiyah. According to statements made by Saudi Aramco, the country is expanding processing capacity to 15.5 Bcf/d, with projects underway at Khursaniya, Hawiya, Ju'aymah, Yanbu', and Khurais.

Domestic Gas Pipelines

Domestic demand, particularly the delivery feedstock to petrochemical plants, has driven consistent expansion of the nearly 8.0 bcf/d Master Gas System (MGS), the domestic gas distribution network in Saudi Arabia first built in 1975. Prior to the MGS, all of Saudi Arabia's natural gas output was flared. The MGS feeds gas to the industrial cities including Yanbu' on the Red Sea and Jubail.

In order to feed the expanded gas processing facilities, several additions to the MGS are in the planning or construction phases. The largest pipeline to be built is the 132-mile conduit to the Rabigh complex and the existing Yanbu' NGL processing facility. Installation of four pipelines, totaling some 62-miles will connect Manifa to KGP and Ras az-Zour for gas processing and raw power production. This is part of a broader expansion of the existing gas transmission system in Saudi Arabia, reportedly to include the construction of around 1,200 miles of additional natural gas pipeline capacity (on top of 10,500 miles of oil, gas, and condensate, products, and natural gas liquid pipelines currently in operation).

Profile

Energy Overview

Proven Oil Reserves (January 1, 2011E)	260 billion barrels (plus 2.5 billion barrels in Saudi share of the Neutral Zone)
Total Petroleum Production – including the Neutral Zone (2010E)	10.2 million barrels per day (bbl/d), of which 8.4 million bbl/d was crude oil, and 1.8 million bbl/d was natural gas liquids (NGLs) and "other liquids" (including MTBE)
Oil Consumption (2009E)	2.4 million bbl/d
Domestic Crude Oil Refining Capacity (January 1, 2011E)	2.1 million bbl/d
Proven Natural Gas Reserves (January 1, 2011E)	275 trillion cubic feet (Tcf) (includes half of Neutral Zone)
Natural Gas Production/Consumption (2009E)	3.2 Tcf
Electricity Installed Capacity (2008E)	39.2 Gigawatts (all thermal)
Electricity Generation (2009E)	194 billion kilowatt-hours (Bkwh)
Electricity Consumption (2008E)	174 billion kilowatt-hours (Bkwh)
Total Energy Production (2008E)	25.2 quadrillion Btu*
Total Energy Consumption (2008E)	6.7 quadrillion Btu*
Energy Intensity (2008E)	18,998 Btu/\$ 2005 (Market Exchange Rates)

Environmental Overview

Energy-Related Carbon Dioxide Emissions (2008E)	466.0 million metric tons
Per-Capita, Energy-Related Carbon Dioxide Emissions (2008E)	16.6 metric tons
Carbon Dioxide Intensity (2008E)	1.3 metric tons/thousand \$2005 (Market Exchange Rates)

Oil and Gas Industry

Major Oil/Gas Terminals	Ras Tanura Facility (over 6 million bbl/d) Ras Tanura Port (2.5 million bbl/d), Ras al-Ju'aymah (3-3.6 million bbl/d capacity), Yanbu (over 6 million bbl/d capacity – of which 4.5 million bbl/d crude, remainder products/LPG), Jubail, Jiddah, Jizan Ras al-Khafji, Rabigh, Zuluf
Major Oil Fields	Abqaiq, Ghawar, Khurais, Khursaniya, Qatif, Safaniya, Shaybah, Zuluf
Major Pipelines (capacity – million bbl/d)	Domestic: Abqaiq-Yanbu Petrolene (5.0), Abqaiq-Yanbu NGL line (0.3); International: Saudi Arabia-Bahrain (estimated 0.7) , Saudi Arabia-Iraq or IPS (1.6 -- closed since August 1990), TransArabia Tapline (0.5 -- closed since 1984)

Major Refineries (capacity January 1, 2009E)

Saudi Aramco - Ras Tanura 550,000 bbl/d; Saudi Aramco - Rabigh 400,000 bbl/d; Saudi Aramco - Yanbu 235,000 bbl/d; Saudi Aramco - Riyadh, 120,000 bbl/d; Saudi Aramco - Jeddah 85,000 bbl/d; Saudi Aramco/Mobil - Yanbu 400,000 bbl/d; Saudi Aramco/Shell - al-Jubail 290,000 bbl/d; Mina Saud (Mothballed), Arabian Oil Company (Japan) - Ras al-Khafji (30,000 bbl/d – mothballed in 2005)

* 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 - Country Information on Saudi Arabia](#)

[EIA - Information on the Straits of Hormuz](#)

[EIA - OPEC Revenues Fact Sheet](#)

U.S. Government

[CIA World Factbook - Saudi Arabia](#)

[Library of Congress Country Study on Saudi Arabia](#)

[U.S. Consulate in Dhahran](#)

[U.S. Consulate in Jeddah](#)

[U.S. Commercial Service – Saudi Arabia](#)

[U.S. Embassy in Riyadh](#)

[U.S. State Department's Background Note- Saudi Arabia](#)

[U.S. State Department Consular Information Sheet – Saudi Arabia](#)

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[Joint Oil Data Initiative \(JODI\)](#)

[National Shipping Company of Saudi Arabia \(NSCSA\)](#)

[Organization of Petroleum Exporting Countries \(OPEC\)](#)

[Royal Commission for Jubail and Yanbu](#)

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