

COUNTRY ANALYSIS BRIEFS

United Arab Emirates

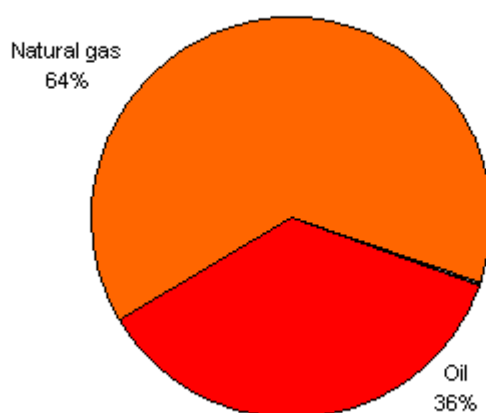
Last Updated: July 2007

Background

The UAE holds the fifth largest proven oil reserves in the Middle East and the fifth largest proven natural gas reserves in the world.

The United Arab Emirates (UAE) is an important oil producer with the fifth largest proven oil reserves in the Middle East. The UAE is a member of the Organization of the Petroleum Exporting Countries (OPEC) since joining in 1967. The emirate of Abu Dhabi is the center of the oil and gas industry, followed by Dubai, Sharjah, and Ras al Khaimah. In 2004, natural gas supplied 64 percent of the country's total energy consumption, and oil supplied the remaining 36 percent.

Total Energy Consumption in United Arab Emirates, by Type (2004)



Source: EIA International Energy Annual 2004

The UAE is a high-income, stable federation of seven emirates with the second largest Arab economy in the Middle East. The non-oil sectors grew 18.6 percent in 2006 and have tripled during the last three years. Good relations with Asian trading partners and a growing domestic population have helped diversify the thriving economy. However, the country remains dependent on oil revenue, and the government has announced large oil production capacity increases within the next seven years. Abu Dhabi is the major hydrocarbon and industrial power while Dubai is the trading, financial, and tourist center of the emirates. Abu Dhabi and Dubai account for 80 percent of the UAE's income. Hydrocarbon revenues account for around one-third of the UAE's GDP, though the non-oil finance and service sectors in Dubai are making the city a favored base for multinational corporations in the Gulf.

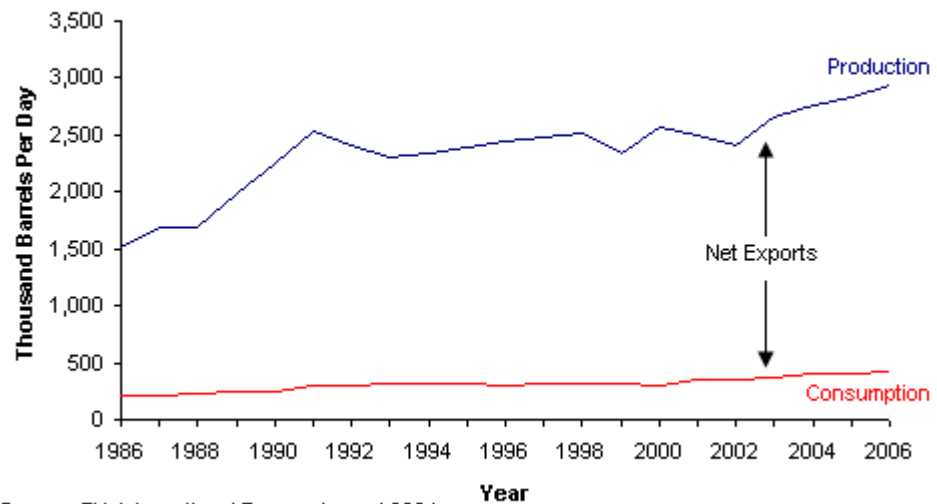


Oil

The United Arab Emirates plans to increase production capacity further over the next seven years.

In 2006, EIA estimates that the United Arab Emirates (UAE) produced 2.9 million barrels per day (bbl/d) of total oil liquids, of which 2.5 million bbl/d was crude oil. The UAE also produced an estimated 300,000 bbl/d of natural gas liquids (NGLs) and 102,000 bbl/d of condensate. UAE oil consumption averaged 423,000 bbl/d in 2006, with the majority of production exported to Asian countries. Foreign Minister Sheikh Abdullah bin Zayed al-Nahyan announced in April 2007 that UAE oil production capacity will increase to 5 million bbl/d by 2014, increasing the UAE's profile in the region.

UAE's Oil Production and Consumption, 1986-2006*



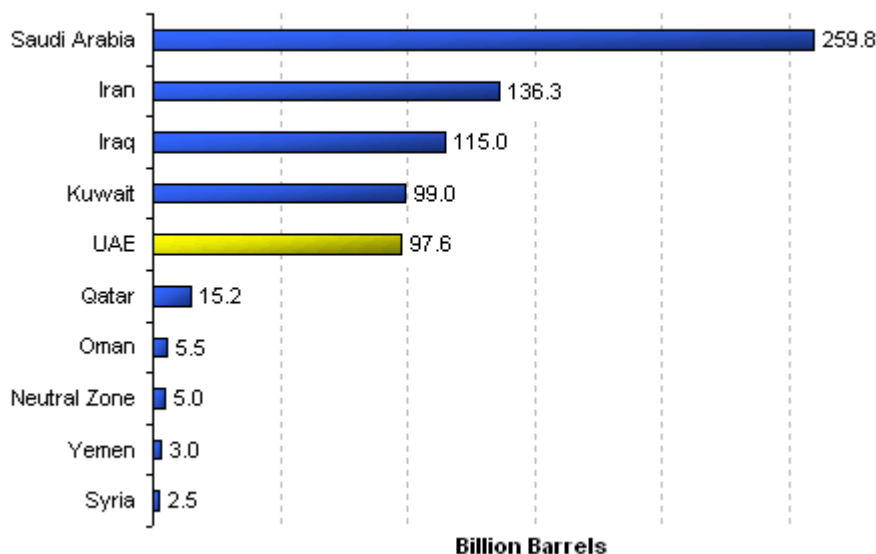
Source: EIA International Energy Annual 2004;
Short-Term Energy Outlook (July 2007)

*2006 is estimate

According to *Oil & Gas Journal* (OGJ), the UAE's proven oil reserves were 97.6 billion barrels as of January 1, 2007. Abu Dhabi leads the other emirates with 92.2 billion barrels followed by Dubai with 4 billion barrels, Sharjah with 1.5 billion barrels, and Ras al Khaimah with 500 million barrels. The UAE holds the fifth largest proven oil reserves in the region. UAE crude streams are expensive due to their light and sweet composite compared to other Middle Eastern producers.

The API gravity ranges from 34 to 36.8 degrees in the Zakum field, to 40.4 degrees in Murban.

Middle East Oil Reserves by Country, January 1, 2007



Source: Oil & Gas Journal, Jan. 1, 2007

Sector Organization

The largest state owned company is the Abu Dhabi National Oil Company (ADNOC), which operates 17 subsidiary companies in the oil and natural gas sectors. ADNOC maintains the right to take up to 60 percent stake in new major oil projects. Hydrocarbon production is handled on a production sharing basis between state-owned companies and foreign investors. The majority of Abu Dhabi's oil production is under the Abu Dhabi Company for Onshore Operations (ADCO), as well as the Abu Dhabi Marine Operating Company (ADMA-OPCO) and the Zakum Development Company (ZADCO.)

The Supreme Petroleum Council sets energy policy, and oil is the main focus of the UAE's hydrocarbon policy under Oil Minister Mohammed al-Hamli, who is also the 2007 OPEC President. Foreign investors have a relatively limited role outside of exploration. Foreign contracts tend to fall under an engineering, procurement, and construction (EPC) basis.

Exploration and Production

The UAE oil reserves account for 8.5 percent of total world reserves, most of which are located in Abu Dhabi. According to *Global Insight*, the Zakum oil field is the largest in the country, and the third largest in the Middle East, with an estimated 66 billion proven barrels. The UAE has committed itself to infrastructure development and enhanced oil recovery techniques in mature fields. The Upper Zakum project is a partnership between ADNOC, ExxonMobil, and Jodco to increase the Zakum production capacity by 200,000 bbl/d. Increases in production are also expected on onshore fields, Bu Hasa, Bab, and Asab, as well as north-eastern fields, al-Dabbi'ya, Rumaitha, and Shanatet. The government hopes that increased production capacity will make the UAE a 'swing' producer, strengthening its role and influence in the region. However, new exploration has been disappointing.

UAE UPSTREAM PETROLEUM PROJECTS (through 2010)					
Field	Company	Current Capacity thousand (bbl/d)	Increase thousand (bbl/d)	Online	API Gravity
Upper Zakum (offshore)	Zadco/ExxonMobil/ADNOC	550	200	2009	39
Nasr and Umm Loulou	ADCO	0	190	2010	32
Qusahwira and Bida al-Qemzan	ADCO	0	90	2010	crude
Sahil, Asab, and Shah	ADCO	385	60	2010	41
Huwaila	ADNOC	0	30	2008	crude
Total New Capacity by 2010:			570		
<i>Sources: OPEC, Global Insight, EIA, Platts</i>					

Pipelines

The Emirates have a network of domestic pipelines linking fields with processing plants and exit ports for trade. There are also inter-emirate pipelines primarily for natural gas injection to increase oil recovery levels in existing Dubai oil fields. The Dolphin natural gas project linking Qatar (See [Qatar Country Analysis Brief](#)) and the UAE is the most important recent development in the area (see Natural Gas Section for more information.)

Exports

UAE lies on the Persian Gulf with a number of ports available for shipping crude oil and natural gas exports. The main terminals are: Jabel Dhana, Zirku Island, Das Island, and Ruwais. Jabel Dhana exports from Abu Dhabi's Asab, Bab, Bu Hasa, Sahil, and Shah oil fields. According to the EIA, Japan imported 1.36 million bbl/d from the UAE in February 2007, which is 54 percent of the UAE's total crude oil exports.

Refining

According to OGJ, the UAE had 781,250 bbl/d of refining capacity at five facilities as of January 1, 2007. The three main refineries are Ruwais, Umm Al-Nar, and Jebel Ali. The largest two are ADNOC's Ruwais with a 350,000 bbl/d capacity and Umm Al-Nar with a 150,000 bbl/d capacity. All substantial upgrades have been offered on an EPC basis, and there is discussion over larger roles in refining for private investors. Abu Dhabi's investment arm IPIC and ConocoPhillips signed a deal in 2006 for a new refinery with 500,000 bbl/d capability.

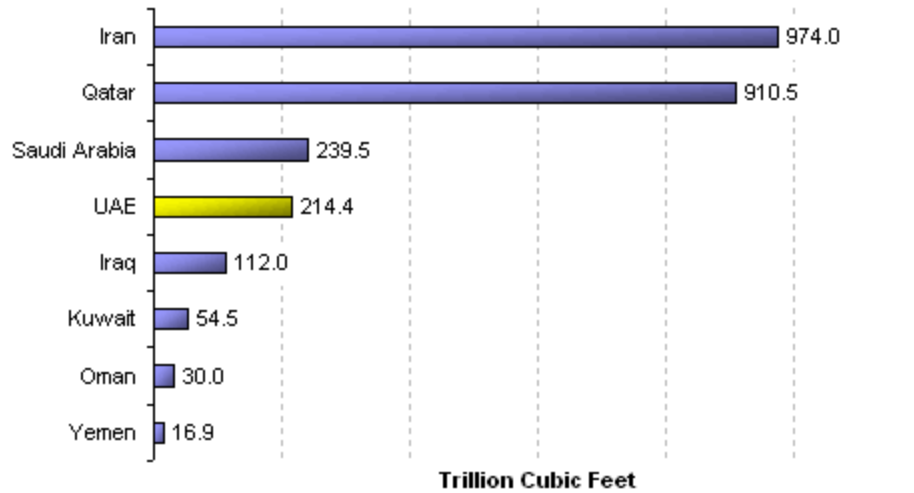
Natural Gas

According to OGJ, the UAE's proven natural gas reserves were 214 trillion cubic feet (Tcf) as of January 1, 2007. UAE holds the fourth largest proven natural gas reserves in the Middle East after Iran, Qatar, and Saudi Arabia. (See [Iran](#), [Qatar](#), and [Saudi Arabia](#) Country Analysis Briefs) The largest reserves of 198.5 Tcf are located in Abu Dhabi. Sharjah, Dubai, and Ras al-Khaimah contain smaller reserves of 10.7 Tcf, 4.0 Tcf, and 1.2 Tcf, respectively. In Abu Dhabi, the non-associated Khuff natural gas reservoirs beneath the Umm Shaif and Abu al-Bukhush oil fields rank among the world's largest.

Rising energy prices have put a new emphasis on the UAE's large natural gas reserves even though high extraction costs and sulfur content pose difficulties for the industry. In 2005, the UAE produced 1,659 Bcf and consumed 1,457 Bcf. The UAE imported 49 Bcf and exported 252 Bcf in 2005. Recent developments linking processing facilities, internationally and domestically, will promote the use of natural gas for generating power, desalinization, and injection for oil fields. The Dolphin project is a partnership to import natural gas from Qatar, the second largest natural gas holder in the region, is the most prominent development in the UAE natural gas sector in the past year.

The Dolphin Project pipeline, the first cross-border natural gas pipeline in the Arab Gulf, is slated to import two billion cubic feet per day to the UAE from Qatar by the end of 2007.

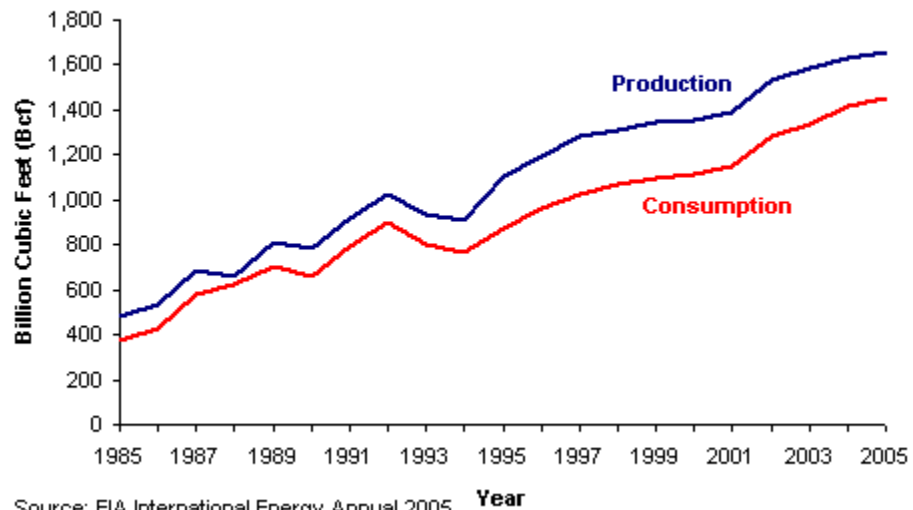
Middle East Natural Gas Reserves by Country, January 1, 2007



Source: Oil & Gas Journal, Jan. 1, 2007

Increased domestic consumption of electricity and growing demand from the petrochemical industry has provided incentives for the UAE to increase its use of natural gas. Over the last decade, natural gas consumption in Abu Dhabi has doubled, and it currently stands at around 4 billion cubic feet per day (Bcf/d). The development of natural gas fields also results in increased production and exports of condensates, which are not subject to OPEC production quotas. Dubai's natural gas consumption has been growing by nearly 10 percent annually due to expansion of the emirate's industrial sector, a switch to natural gas by its power plants, and the need for an enhanced oil recovery (EOR) system based on natural gas injections in mature oil fields. In June 2007, Oil Minister Hamli stated that as much as 50 percent of UAE natural gas was used for power generation in the summer months.

UAE's Natural Gas Production and Consumption, 1985-2005



Source: EIA International Energy Annual 2005

Liquefied Natural Gas (LNG)

The UAE set up its first LNG plant in 1977 on Das Island operated by ADGAS. The plant is run on associated natural gas from the Um Shaif, Lower Zakum, and Bunduq oil fields. LNG exports to

Japan reached 259.6 Bcf in 2005, followed by 10.9 Bcf to Spain and 2.8 Bcf to South Korea.

Sector Organization

UAE natural gas exports are managed by an ADNOC subsidiary, Abu Dhabi Gas Liquefaction Co. (ADGAS), and is limited to LNG and liquids. The National Gas Shipping Company (NGSCO) handles the shipments from the LNG plant, and operates eight LNG carriers. The principal contract is with Tokyo Electric Power Company (TEPCO), and dates back to 1977.

Pipelines

In the past year, the UAE's natural gas sector has been working with numerous countries and companies on pipeline development. One potential pipeline from Iran, the region's top holder of natural gas reserves, was stalled due to price negotiations. Domestically, ADNOC distributes natural gas in Abu Dhabi, and is planning to build two natural gas distribution networks for Abu Dhabi and al-Ain with over 2,173 miles of pipelines to supply industrial and residential needs. GASCO, manages 869 miles pipeline network in Abu Dhabi which supplies oil fields, power plants, and petrochemical facilities. Within the Arab Gulf, the Dolphin Project is the most significant development in the sector this year. The overall volume of natural gas transported to and within the UAE will rise dramatically as the UAE's natural gas consumption rises.

Dolphin Project

The difficulties of extracting natural gas in the UAE led to the development of the Dolphin Project, an agreement to import natural gas from Qatar's North Field, the world's largest natural gas deposit, to Abu Dhabi and then Dubai. The managing company, UAE Mubadala Development Company, holds a 51 percent stake in Dolphin Energy with France's Total and U.S. Occidental Petroleum Corp. sharing the remaining stake at 24.5 percent each. The project will supply 2 Bcf/d of natural gas from Qatar to the UAE and Oman by the end of 2007 according to Dolphin Energy's Chief Executive Officer Ahmed Ali Al Sayegh. (See [Oman Country Analysis Brief](#)) The \$3.5 billion pipeline is the first cross border natural gas line in the Gulf Arab region, and will help UAE meet its energy demand. It consists of a 48-inch subsea export pipeline running 226 miles from Qatar to Dolphin's receiving facilities at Taweelah in Abu Dhabi. From there the natural gas will be distributed by landline to Dolphin customers. The first natural gas imports were successfully tested in March 2007, and the first commercial shipment is scheduled for July 2007.

Exploration and Production

Minister of Energy, Dhaen Al Hamli, has stated that the UAE will increase production of natural gas by 33 percent by the end of 2008. The Thamama formation in Abu Dhabi is the third phase of the Onshore Gas Development (OGD) to bring 1.2 Bcf/d of natural gas from the Thamama F reservoir at the Bab field by 2008. Shell and ExxonMobil are also involved in technical studies for natural gas development at Shah and Bu Hasa respectively. High energy prices have led to further interest in sour natural gas development from both the majors and newcomers to the UAE. At least five international energy companies submitted bids in April 2007 for giant sour natural gas projects.

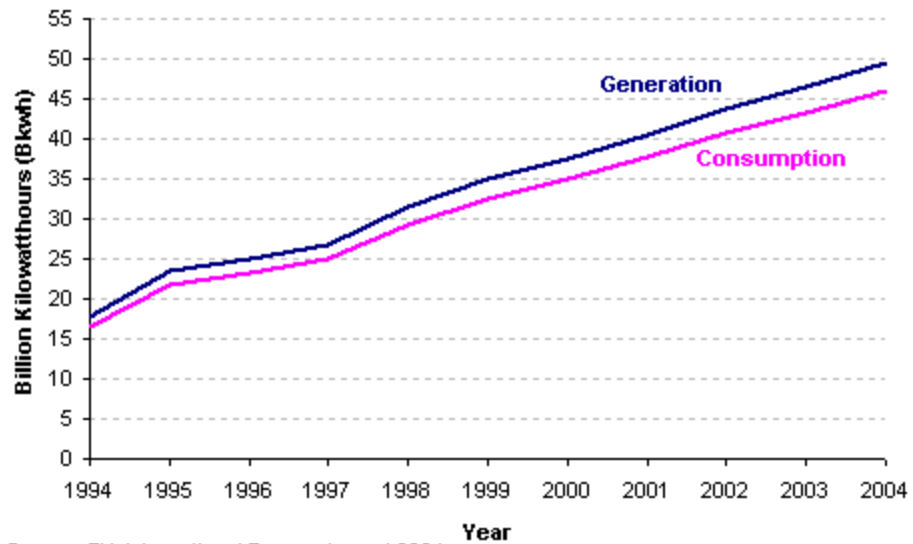
Electricity

Overview

UAE power demand is among the largest in the region due to financial and tourist projects as well as a growing population. According to *Global Insight*, UAE has added 24 percent electricity-generating capacity at an annual rate over the last 30 years. Current total capacity for electricity production is around 16.7 gigawatts (GW), but will need to increase further considering the 10 percent per year demand rise expected through 2010. Nearly all UAE power comes from conventional thermal generation. In 2004, consumption reached over 45 billion kilowatthours (Bkwh).

UAE electricity demand is growing rapidly, and the government is spending billions of dollars to meet future demand.

UAE's Electricity Generation and Consumption, 1994-2004



Source: EIA International Energy Annual 2004

Gulf Cooperation Council (GCC) Grid

Construction is underway to develop a national grid between emirates to increase electricity efficiency, as well as link UAE with the multi-national Gulf Cooperation Council (GCC). UAE is part of the second phase of the \$1.1 billion GCC regional grid project. The first phase of the plan links Saudi Arabia, Kuwait, Bahrain and Qatar, followed by the UAE and Oman. (See [Kuwait](#) and [Bahrain](#) Country Analysis Briefs) The plan calls for each nation to first develop its own unified power grid, and the UAE is connecting all power stations along its western coast with the central region.

Profile

Country Overview

Head of State	Sheikh Khalifa bin Zayed al-Nuhayyan
Location	Middle East, bordering the Gulf of Oman and the Persian Gulf, between Oman and Saudi Arabia
Independence	2 December 1971 (from UK)
Population (2006E)	4,444,011

Economic Overview

Currency/Exchange Rate (6/22/2007)	1 U.S. Dollar = 3.67 UAE Dirhams
Inflation Rate (2006E)	9.5%
Gross Domestic Product (2006E)	\$129.5 billion
Real GDP Growth Rate (2006E)	8.9%
Exports (2006E)	\$137 billion
Exports - Commodities	crude oil 45%, natural gas, reexports, dried fish, dates
Exports - Partners (2005E)	Japan 24.5%, South Korea 9.8%, Thailand 5.6%, India 4.3%
Imports (2006E)	\$88.9 billion
Imports - Commodities	machinery and transport equipment, chemicals, food
Imports - Partners (2005E)	UK 10%, China 9.7%, US 9.4%, India 9.2%, Germany 5.9%, Japan 5.4%, France 4.7%, Singapore 4.1%

Energy Overview

Minister of Petroleum	Muhammad bin Al-Hamli
Proven Oil Reserves (January 1, 2007E)	97.6 billion barrels
Oil Production (2006E)	2.9 million barrels per day, of which 2.5 million was crude oil.
Oil Consumption (2006E)	423,000 barrels per day
Crude Oil Distillation Capacity (2007E)	781 barrels per day
Proven Natural Gas Reserves (January 1, 2007E)	214 trillion cubic feet
Natural Gas Production (2005E)	1.6 trillion cubic feet
Natural Gas Consumption (2005E)	1.5 billion cubic feet
Recoverable Coal Reserves (2004E)	None
Coal Production (2004E)	None
Coal Consumption (2004E)	None
Electricity Installed Capacity (2004E)	5.9 gigawatts
Electricity Production (2004E)	49.5 billion kilowatt hours
Electricity Consumption (2004E)	46 billion kilowatt hours
Total Energy Consumption (2004E)	2.3 quadrillion Btus*, of which Natural Gas (64%), Oil (36%)
Total Per Capita Energy Consumption (2004E)	925 million Btus
Energy Intensity (2004E)	36,022 Btu per \$2000-PPP**

Environmental Overview

Energy-Related Carbon Dioxide Emissions (2004E)	141 million metric tons, of which Natural Gas (57%), Oil (43%), Coal (0%)
Per-Capita, Energy-Related Carbon Dioxide Emissions (2004E)	56 metric tons
Carbon Dioxide Intensity (2004E)	2.2 Metric tons per thousand \$2000-PPP**
Environmental Issues	lack of natural freshwater resources compensated by desalination plants; desertification; beach pollution from oil spills
Major Environmental Agreements	party to: Biodiversity, Climate Change, Climate Change-Kyoto Protocol, Desertification, Endangered Species, Hazardous Wastes, Marine Dumping, Ozone Layer Protection signed, but not ratified: Law of the Sea

Oil and Gas Industry

Organization	Abu Dhabi National Oil Company (ADNOC); Operates 17 subsidiary companies in the upstream, midstream, and downstream oil and gas sectors.
Ports	Abu Dhabi: Das Island, Delma Island, Jebel as Dhanna, Ruwais, Abu al Bukhush, Al Mubarraz, Zirku Island, Port Zayed, Umm al Nar Dubai: Jebel Ali, Fateh, Port Rashid Sharjah: Mubarak
Major Oil Fields	Abu Dhabi: 'Asab, Bab, Bu Hasa, Al-Zakum Dubai: Fallah, Fateh, Southwest Fateh, Margham, Rashid Sharjah: Mubarak (near Abu Musa Island)
Major Natural Gas Fields (production, Bcf/d)	Abu Dhabi: Abu al-Bukhush, Bab, Bu Hasa, Umm Shaif, Zakum
Major Refineries	Ruwais (350,000 bbl/d), Umm al-Nar (150,000 bbl/d), Jebel Ali - Dubai (120,000),

* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power. The renewable energy consumption statistic is based on International Energy Agency (IEA) data and includes hydropower, solar, wind, tide, geothermal, solid biomass and animal products, biomass gas and liquids, industrial and municipal wastes. Sectoral shares of energy consumption and carbon emissions are also based on IEA data.

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

Links

U.S. Government

[CIA World Factbook - United Arab Emirates](#)
[EIA - Country Information on the United Arab Emirates](#)
[U.S. State Department Background Notes on UAE](#)
[U.S. State Department Consular Information Sheet, UAE](#)
[U.S. Embassy, Abu Dhabi](#)

Foreign Government Agencies

[Embassy of UAE in Washington, DC](#)
[Official Portal of Dubai Government](#)
[UAE e-Government Portal](#)

Oil, Natural Gas, and Electricity

[Abu Dhabi National Oil Company \(ADNOC\)](#)
[Abu Dhabi Water and Electricity Authority \(ADWEA\)](#)
[Dolphin Energy](#)
[Dubai Electricity and Water Authority \(DEWA\)](#)

General

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Sources

Asia Pulse
CIA World Factbook
Dow Jones Commodities service
Economist Intelligence Unit ViewsWire
Global Insight
Gulf News
Middle East Economic Digest
Middle East Economic Survey
Middle East Oil & Gas Review
Mist News
Oil and Gas Journal
Organization of Asia-Pacific News Agencies
Organization of Petroleum Exporting Countries
Platts Commodity News
Reuters News
Rigzone
Upstream
U.S. Energy Information Administration

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