



Energy in the UAE

The United Arab Emirates (UAE) has the world's sixth largest proven oil reserves and the fifth largest natural gas reserves, making the country a critical partner and responsible supplier in global energy markets. The UAE is the world's third largest exporter of crude oil, though exports very little to the United States. While a mainstay to the economy, oil exports actually account for only about one-third of economic activity, as a result of aggressive government policies designed to diversify the UAE economy.

The UAE is also pursuing groundbreaking renewable energy and energy efficiency programs. In 2005 the UAE ratified the Kyoto Protocol to the UN Convention on Climate Change, becoming one of the first major oil-producing countries to do so. Abu Dhabi has also established one of the world's most comprehensive clean energy initiatives.

Oil and Natural Gas

Each emirate controls its own oil production and resource development. Abu Dhabi holds 94 percent of the UAE's oil resources, or about 92.2 billion barrels. Dubai contains an estimated 4 billion barrels, followed by Sharjah and Ras al-Khaimah with 1.5 billion and 100 million barrels of oil, respectively.

Abu Dhabi has a history of welcoming private sector investment into its upstream oil and gas exploration and production sector. Abu Dhabi was the only OPEC member not to nationalize the holdings of foreign investors during the wave of nationalization that swept the global oil and gas industry in the mid-1970's, and it continues to benefit from high levels of private-sector investment. Today, international oil companies from the United States, Japan, France, Britain and other countries continue to hold combined equity stakes of between 40 and 100 percent in Abu Dhabi's vast oil concessions.

The UAE exports more than 40 percent of its crude oil to Japan, making it the UAE's largest customer. The UAE is a net importer of natural gas, and gas exports are primarily to Japan, the world's largest buyer of liquefied gas.

Due largely to geographic realities affecting transportation costs, the UAE exports minimal quantities of oil and gas to the United States. Nevertheless, the UAE is an important oil and gas supplier to the international market and second only to Saudi Arabia in terms of spare oil production capacity.

The **Dolphin Project**, which imports natural gas by pipeline from Qatar to the UAE, was the first major cross-border energy deal between Gulf countries. The project will free up Abu Dhabi's gas for crude oil recovery and export. Occidental Petroleum of the United States and Total of France each have a 24.5 percent equity stake in the project, while the Government of Abu Dhabi holds the remaining 51 percent. The first commercial

deliveries of Qatari natural gas began in the summer of 2007 and will continue throughout the 30-year term of the development and production-sharing agreement signed with the Government of Qatar.

Securing Oil Shipments

In an effort to enhance security of supply, Gulf governments are studying the development of oil pipelines that would bypass the Strait of Hormuz. About two-fifths of the world's traded oil currently is shipped by tanker through this 34-mile-wide passage.

If built, the pipelines could move as much as 6.5 million barrels of oil per day or about 40 percent of the amount currently shipped through the Strait. One such pipeline, linking the Habshan oil field in Abu Dhabi with Fujairah port, is scheduled to start trial operation at the end of 2010 and begin operating in August 2011. The pipeline will allow the UAE to pump about 60 percent of its crude exports to Fujairah port on the Gulf of Oman, thus avoiding the strategic shipping chokepoint at the Strait of Hormuz.

Expanding Oil Supply

The UAE continues to significantly increase its production to supply the global energy markets. While some OPEC nations and many non-OPEC nations have seen production declines over the last five years, the UAE has increased its total production of crude oil by approximately 31 percent. In no year during that period has average annual production fallen below the previous year.

Electricity: Rapidly Expanding Needs

Economic growth across the UAE has led to massive increases in the demand for electricity. Current estimates indicate that the domestic demand for power will more than double by 2020, even given the global economic slowdown. With limitations on how much and how fast traditional energy resources, like natural gas, can be brought to market, as well as concerns about climate change, the UAE Government launched various initiatives aimed at identifying alternative means for producing the power needed to fuel its economy.

Nuclear Energy

As a result of this study, the UAE is pursuing a peaceful, civilian nuclear energy program that upholds the highest standards of safety, security, nonproliferation and operational transparency. Government officials, nonproliferation advocates, and energy experts worldwide have called the UAE approach a gold standard for countries interested in exploring nuclear energy for the first time.

In developing its nuclear energy policy, the UAE made its peaceful objectives unambiguous. A policy document released in April 2008 outlined a series of commitments, including the decision to forgo domestic enrichment and reprocessing of nuclear fuel, the two parts of the nuclear fuel cycle that can most readily be used for non-peaceful purposes. Throughout the process, the UAE has worked closely with the International Atomic Energy Agency (IAEA) and other governments, including the United States.

Alternative Energy

Despite the critical role of oil and gas for the UAE, the country has made groundbreaking commitments in alternative energy. The UAE is taking steps to reduce carbon emissions through major initiatives in both Abu Dhabi and Dubai.

Dubai is developing its master environmental plan that will ensure that growth and progress are achieved while protecting the environment. Demand-side-management of electricity will play a role, as will increased public transportation.

Masdar Initiative

The UAE's largest emirate, Abu Dhabi, has committed more than \$15 billion in renewable energy programs. The Masdar Initiative underscores twin commitments to the global environment and diversification of the UAE economy. The Masdar Initiative focuses on the development and commercialization of technologies in renewable energy, energy efficiency, carbon management and monetization, water usage and desalination.

The Initiative's partners include some of the world's largest energy companies and elite institutions: BP, Shell, Occidental Petroleum, Total Exploration and Production, General Electric, Mitsubishi, Mitsui, Rolls Royce, Imperial College London, MIT and WWF. It has four key elements:

- **An innovation centre** to support the demonstration, commercialization and adoption of sustainable energy technologies
- **The Masdar Institute of Science and Technology** with graduate programs in renewable energy and sustainability, located in Masdar City, the world's first carbon-neutral, waste free, car-free city
- **A development company** focused on the commercialization of emissions reduction, and Clean Development Mechanism solutions, as provided by the Kyoto Protocol
- **A Special Economic Zone** to host institutions investing in renewable energy technologies and products.

The UAE's Energy Policy

The UAE has long been an important supplier of energy and is now becoming an increasingly relevant consumer of energy as well. In its efforts to accelerate the development of additional hydrocarbon reserves and in its efforts to contribute to the development and implementation of alternative energy sources, the UAE hopes to continue its long tradition of responsible energy stewardship.

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