Energy in the UAE

With nearly 10 percent of the total world supply of proven crude oil reserves and the world's fifth largest natural gas reserves, the United Arab Emirates (UAE) is a critical partner and responsible supplier in global energy markets. While a mainstay to the economy, oil exports now account for only about 30 percent of total gross domestic product, 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 renewable and alternative energy initiatives.

Oil and Natural Gas

Each emirate controls its own oil production and resource development. Abu Dhabi holds more than 90 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. Indeed, 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 60 percent of its crude oil to Japan, making it the UAE's largest customer. Gas exports are almost entirely to Japan, the world's largest buyer of liquefied gas, with the UAE supplying almost one-eighth of Japan's entire requirements.

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. In addition, the UAE's aggressive plans to expand production capacity will contribute significantly to offsetting future, demand-driven increases in the price of crude oil.

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

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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. Construction of a first, smaller pipeline would carry oil from UAE's Habshan oil field to the emirate of Fujairah, located outside the strait on the Gulf of Oman.

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.

Turning to the future, upstream oil and gas entities in the UAE continue to identify new projects aimed at boosting the nation's crude oil production capacity to nearly 4 million barrels per day by 2020, which would amount to an additional increase of approximately 40 percent over current production levels.

Electricity: Rapidly Expanding Needs

Booming economic growth across the UAE has led to massive increases in the demand for electricity. Current estimates suggest that the domestic demand for power will more than double by 2020. 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 has launched various initiatives aimed at identifying alternative means for producing the power needed to fuel its economy.

Nuclear Energy

The UAE is assessing the possibility of developing a peaceful nuclear energy program. The UAE government is acutely aware of the sensitivities involved in the deployment of nuclear reactors and even the simple evaluation of the possibility. Accordingly, the UAE government has worked to make its peaceful and unambiguous objectives clear, in terms of its current evaluation of a peaceful nuclear energy program as well as its potential future deployment. The government released an in-depth policy paper to the public, addressing how the potential development of nuclear energy would be pursued safely, securely and peacefully. As part of its commitments for transparency, nonproliferation, security and safety, the UAE has determined that it will not pursue uranium enrichment and instead rely on the international market for nuclear fuels. 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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