UAE on path to cut energy consumption

23 December 2008

The UAE is a major oil producing country. Nonetheless, there are serious moves under way to reduce energy utilisation leading to carbon emission and development of alternatives to carbon-based fuels for power and cooling.

Dubai is vigorously advancing the principles of green buildings and communities.

Currently, a tower designed to be completely powered by solar and wind energies is planned. Also, construction of nuclear power plants is being considered.

Already in the market are solar-powered equipment manufactured by companies operating in Dubai.

Meanwhile, with oil resources dwindling, Dubai's role in the oil market is shifting to becoming an energy trading centre.

Recent reports concerning energy consumption in the UAE have said that 25 per cent of Gulf water has been consumed, with one-fifth of it being used for electricity.

The reports also said the UAE would need $10 billion (Dh36.7bn) to satisfy energy demand for the next 10 years, due to developments and projects that are increasing by 12 per cent each year.

The UAE has one of the highest levels of energy consumption per capita in the world. Forecasts indicate that demand for utilities (electricity and water) in Dubai will increase by 12 per cent and 14 per cent per annum until 2010, fuelled by high population growth and high per capita income. To limit the pressure on natural resources the rising demand poses, the Dubai Electricity and Water Authority (Dewa) has implemented a slab system of tariff for electricity and water, charging higher rates to larger users.

The system is aimed at encouraging the population to keep a close eye on their electricity and water consumption, a move that is expected to pave the way for a more responsible utilisation of natural resources. In addition, Dewa is undertaking an information campaign to raise awareness of the need to conserve power and water and how to reduce consumption.

Availability of much cheaper fuel in the UAE has made unattractive the pursuit of the use of renewable sources of energy as alternative or complementary sources to meet the demands of the population and business and industries.

Nonetheless, Dewa has invested in studies exploring the use of renewable sources of energy.

Current projects on reducing carbon emission from energy use have been limited to energy-saving building and communities and production of solar-powered tools and equipment.

However, recent plans include building of nuclear power plants.

Although there has been significant decline worldwide in price of oil recently due to economic slowdown, demand for oil is expected to remain substantial and to increase when the world economy emerges out of this crisis.

Oil is set to remain the major source of revenue for the region for years to come. Dubai is taking advantage of this and of its geographical position and facilities in making a bid to become the energy trading centre of the oil-rich region.

To meet its energy requirement, Dubai is focusing on downstream operations, refining oil and producing by-products. Other projects in which Dubai is involved include the Dolphin Gas Project, which would supply its current natural gas requirement.

The renewable energy sector in Dubai is in its infancy.

To date the applications of renewable energy are generally small, limited to parking meters, traffic lights, off shore buoys, water heating in some hotels, monitoring systems (water flows), oil rigs and telecommunications.

However, the number of companies engaged in renewable energy has been growing over recent years.

In the pipeline, however, are two structures meant to harness solar and wind power to supply the energy requirements.

Scheduled for completion at the Dubai Silicon Oasis in late 2009, the German Business Park, designed by Claus Fischer and his team of German specialists engineers and consultants, is an ecologically "green building", the design taking advantage of the abundant sunlight to power its climate control systems, converting the sun's heat into cool air. This system is expected to be so efficient that it would produce a net gain in energy, which could be used to power some of the building's other features. The evaporative cooling technology is a high-tech product including state-of-the-art solar absorber materials and accessories that are being economically integrated into the building's superstructure and distinctive façade.

Also to rise in Dubai is Burj Al Taqa (Dubai Energy Tower), a 60-storey tower that is designed to be self-sufficient in power.

The design combines traditional building ventilation techniques popular in the Middle Eastern countries with the ability to generate 100 per cent of its energy needs using wind and solar power.

With Eckhard Gerber as lead architect, the tower is designed by Gerber Architeken International GmbH, with environmental engineers DS-Plan, structural engineers Bollinger + Grohmann Ingenieure and fire engineers Buro Happold.

Taking advantage of its geographical position and its facilities, Dubai is making a bid to become the energy trading centre of the oil-rich region.

On 1 June 2007, the Dubai Mercantile Exchange (DME) launched the first and only physically delivered Oman Crude Oil Futures Contract. In addition to DME, the Dubai Multi Commodities Centre (DMCC) plans to introduce liquefied natural gas (LNG) futures contract. It has entered into a joint venture with LNG Impel for the LNG storage facility project to provide 40-65 bn cu of storage space and provide services for LNG quality blending and LNG loans

In spite of all the programs for the utilisation of renewable sources of energy, it is still recognised that oil is the largest resource of the Middle East, and this will remain so even in the long term.

Taking advantage of Dubai's location and facilities, Dubai Petroleum Establishment (DPE) is partnering with Petrofac to establish the Dubai Petroleum Training Centre (DPTC) to meet the safety and technical training needs of the oil and gas industry in the Middle East, as well as, servicing the other industries within the energy sector

Short to medium-term expectations for use of renewables in Dubai remain low. In fact, only one per cent of the electricity produced is expected to come from renewables during the period.

This percentage, however, is expected to grow rapidly in the long-term due to the potentially higher competitiveness of renewable energy usage. The Department of Renewable Energy predicts that up to half the UAE's required energy will come from renewables by 2050 as the UAE wishes to maintain its position as a net exporter of energy.

Dewa is looking into building a carbon emission-free hydrogen-fired power station.

It signed an MoU with US-based Sino Global International, Canada's Skyline Services Group and China's Samena Power and Energy for the conduct of a feasibility study for the project.If found viable, the 2000-MW power station would be the world's largest hydrogen-fired power station. However, there are serious objections to the project as building costs would be higher than for a conventional power station of similar output.

In January 2008, the UAE signed a deal with President Nicholas Sarkozy of France, involving the building of two 160-MW nuclear reactors over the next decade by French firm Areva, Total and Suez.

In collaboration with GCC, the UAE has approached the International Atomic Energy Agency for supervision of any potential civil nuclear activity.

Highlights 2008

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