



# ENERGY AND ENVIRONMENT

## SECTOR ANALYSIS

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### 1. KEYWORDS

Energy, Oil, Gas, Nuclear, Renewable Energy, MASDAR, Dubai, Abu Dhabi, Environment, Sustainability, The United Arab Emirates, UAE, Memorandum of Understanding

### 2. ABSTRACT

The purpose of this report is to give a short introduction to the UAE energy sector. Furthermore the report serves to provide an indication of which opportunities lie within this market, with conclusion of clear indicators of lucrative growth prospects within the segment of renewable energy. This caused by a desire to diversify the regional energy mix towards a more sustainable and green profile, combined with the goal of decreasing carbon emission and the severe exploitation of scarce natural resources.

### 3. MARKET INTRODUCTION

The UAE market for energy and environment is undergoing severe development as consumption continues to grow. Moreover, the awareness of substituting natural resources is becoming more acknowledged. Nuclear and renewable energy is forecasted to grow significantly over a period of 10 years. Dubai specifically, has a vision to become a health city that follows the highest standards of sustainable development. The government of Dubai continuously encourage innovation within this particular segment. The city has won the bid for Expo 2020, which further increases awareness of the Middle Eastern region. The increased awareness is expected to affect the market of energy severely, as the primary themes of Expo 2020 are sustainability and prevention of negative climate changes.

### 4. OIL AND GAS

A strong focus is put on raising production capacity to maximize the potential of the UAE oil and gas reserves. The comprehensive reserves of fossil fuels comprise almost 10% of the world's oil reserves and the 6<sup>th</sup> largest gas reserves in the world, respectively (BMI Oil & Gas Q2, 2014). Moreover, the country is experiencing an increased consumption of oil and gas within the emirates only. Therefore, to substitute its reliance on hydrocarbons and to decrease CO<sup>2</sup> emission radically, the UAE Government plans to make solar energy and nuclear a larger part of the energy mix. Furthermore, almost all electricity generation in the UAE is thermal-

fired, with gas fuelling the largest proportion of it, the remaining being fired by oil. These gas reserves have proven profitable in providing comparative advantages in energy exploitation.

The UAE constitution ensures that each Emirate controls its own oil production and resource development. Abu Dhabi accounts for approximately 95% of the total oil and gas reserves of the UAE and more than half of these are generated by the state-owned Abu Dhabi Marine Operating Company (ADMA-OPCO). The main upstream operator in Dubai is Dubai Petroleum Company (DPC) and the entity responsible for processing natural gas in Dubai's offshore fields is yet another state-owned entity, Dubai Natural Gas Company. Moreover, slight indications emerge of the energy sector initiating slow progress of liberalisation (BMI Oil & Gas Q2, 2014).

In 2015 the Ministry of Energy announced that fuel prices will become deregulated from 1<sup>st</sup> of August. The aim is to lower fuel consumption, protect the environment, preserve national resources and support national economy (The National, 2015). This will affect the market for greener cars and transportation in a positive way.

The UAE government has announced wishes to free stocks for export; however, this seems unaligned with the local energy consumption which is forecasted rapid growth throughout the forthcoming years. Although the UAE is setting forth ambitions to reduce consumption of oil, it is expected to rise by near 30% during the decade.

## 5. NUCLEAR POWER

The UAE is one of the most proactive nuclear supporters in the Middle Eastern region. In its urge to diversify energy mix and increase the use of sustainability the UAE Government continues its plans towards building four nuclear reactors with the first being scheduled for completion in 2017 and the remaining three to be installed by 2020. In 2013 Dubai Water and Energy Authority (DEWA) set a target of 12% of electricity should be nuclear powered by 2030 (BMI Power Q2, 2014).

## 6. RENEWABLE ENERGY

Although the emirates are experiencing a continuous increase in abundance of fossil fuels, tendencies show clear indication of renewable energy leaping forward. The government of Abu Dhabi plans to achieve 7% of its total energy generation generated by renewable energy by the year of 2020. Dubai is less bold in setting forward goals with regards to renewable energy and has announced their target to reach nearby 5% by 2030. Numerous initiatives have been introduced in order to reach those goals, a large proportion of these concentrated around solar power (BMI Power Q2, 2014).

An important entity in the UAE development within renewable energy initiatives is Masdar City. Masdar is a wholly-owned subsidiary of the Government-owned Mubadala development company and is driven by the Abu Dhabi economic vision of 2030. Masdar comprises three business units being Masdar capital, Masdar clean energy and Masdar City, and is complemented by a research driven graduate institute. By a holistic approach Masdar urges to be at the absolute forefront of the global clean energy industry by addressing sustainability challenges of tomorrow

(Masdar, 2014). Masdar is expected to undertake several new renewable energy projects throughout the forthcoming years, mostly within the segment of solar energy. Their primary solar initiative is the Masdar 100MW Shams-1 solar power plant in Abu Dhabi. The city of Masdar is the first carbon neutral city in the world and it holds several international clean tech companies, while it also serves as one of the free zones of Abu Dhabi.

Dubai is also subject to a large number of sustainable projects and the emirate is becoming an important investment destination for international solar power developers. The 1,000MW Mohammed bin Rashid al-Maktoum Solar Park is one of the most extensive solar projects in the region. Moreover, Dubai sets ground for several initiatives of sustainable cities which focuses on sustainability within aspects of educational activities, residential areas, commercial areas, tourist accommodation and attractions, sustainable transport, recycling and clean energy generation.

The project The World, which has been standing still during the financial crisis, is currently initiating developments on the different islands, managed by large developers from the UAE. These developments are highly dependent on sustainable and renewable energy as it is located outside Dubai in the Persian Gulf, without any direct connection to mainland.

## **7. GREEN BUILDING CODE**

A large part of the UAE green energy initiatives are encouraged by the Green Building Code which was introduced during 2011. These Green Building Codes are subject to modification within the respective emirates to align these with already established energy arrangements. It has the purpose of ensuring green regulations within the individual Emirates. This is one of the initiatives that shall help the UAE towards a green and sustainable future (The National, April 1, 2014). Another important part of the Green Building Code is to improve energy efficiency in buildings that have already been built. Thereby causing an urge to ensure a reduction in carbon emission and a positive development in the green building environment for both new and older buildings (Emirates Green Building Council, 2014). Another important issue with regards to developments in renewable energy is the rapidly growing population in the Emirates that creates a continuous demand for housing. A combination of increasing demand and the new green building requirements provide future growth opportunities within renewable energy.

## **8. MEMORANDUM OF UNDERSTANDING BETWEEN DK AND UAE**

In 2014 Denmark and UAE signed a Memorandum of Understanding (MoU) to ensure future cooperation with regards to renewable energy and sustainability. The MoU lays the ground work for future knowledge sharing that will benefit cooperation between the two countries. Moreover, the MoU emphasizes that the UAE is becoming a more attractive market for Danish investors who are interested in foreign investments. Especially the market of renewables enhances lucrative investment opportunities.

The MoU has already born fruit and the most advanced example is the collaboration between Vestas and Masdar on the “Wind of Prosperity”-program. The Sir Bani Yas Island wind farm is mainly dominated by Vestas and the farm is

expected to generate an increasing amount of energy to the Emirate's consumption.

## 9. CONCLUSION AND RECOMMENDATIONS

Sustainability and renewable solutions is quickly becoming more and more important in the UAE and the sector is experiencing massive growth. Danish companies offering green technology and solutions have a huge potential in the UAE.

Sustainability and renewable energy is on the agenda due to a combination of expected growth in energy consumption, an increasing population and moreover a result of winning the bid for Expo 2020. The Expo 2020 event emphasizes a greater concern for future sustainable development. Another severely important development in the UAE sector of energy is the urge to further diversify the energy mix, thereby pursuing to do nuclear and renewables contribute more to the total energy production.

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