



---

## Dubai's energy efficiency drive

Faisal Ali Rashid and Katarina Uherova Hasbani

The Gulf region has been known traditionally as the centre of the global oil and gas industry, and indeed its production has been supplying international markets reliably for decades. However, the region has increasingly been focusing on the policy debate around the Gulf states' own energy demand and, in particular, on sustainability and clean energy solutions. Diversifying the region's energy sources,

for instance via several GCC states' ambitious programmes to harness the Gulf's abundant solar resources, has been one policy response. The United Arab Emirates is home to one such scheme, where Dubai is working towards the production of 1000 MW at its Sheikh Mohammed bin Rashid Al Maktoum solar park. However, another area – demand side management – has also been emerging; this could be critical in

ensuring the Gulf region's sustainable growth over the years to come. Demand side management, together with the related topic of energy efficiency, offers multiple benefits to the economies of Gulf countries.

### Compelling reasons

The growing interest in demand side management stems from two main

motivations. One is the continuing pattern of high economic growth, which has been pushing energy consumption in the region. This consumption almost tripled during the period 1990–2010, putting pressure on the energy systems and finances of individual countries in terms of both fuel supply and the required capacities for electricity generation, transmission, and distribution. Another issue is the pattern of high energy intensity in the region. The energy intensity level in the GCC has been growing, while other regions, such as OECD or Asia, have encountered a downward trend during the period 1980–2010. These factors have important implications for future economic development, especially against the background of policies for economic diversification which are being pursued in the region. Energy is perceived as a cost of doing business and this cost is compared to that in other global trade centres. There is an increasing awareness that energy intensity is a critical factor of competitiveness, along with economic and environmental sustainability.

.....  
**‘THE ENERGY INTENSITY LEVEL IN THE GCC HAS BEEN GROWING, WHILE OTHER REGIONS ... HAVE ENCOUNTERED A DOWNWARD TREND DURING THE PERIOD 1980–2010.’**  
 .....

Dubai is at the forefront of new energy policy thinking in the region. This stems from the already diverse nature of its economy which is based on trade, logistics, manufacturing, and tourism. It also due to the fact that Dubai is a net importer of energy; this implies its use of different policy approaches – in terms of both supply and demand side energy management – from countries such as Abu Dhabi and other GCC states with significant own oil and natural gas resources. Therefore, the need for increased efficiency in the use of energy was identified by the Dubai

Supreme Council of Energy as a key part of Dubai’s drive to increase the competitiveness and sustainability of its economy.

At the strategic level, a 30 per cent reduction in Dubai’s energy demand by 2030 (in comparison to the business as usual scenario), was set as one of the objectives of the Dubai Integrated Energy Strategy, which sets out key energy priorities for the period 2010–30 and is the first of its kind in the GCC. The Strategy was developed and mandated in 2010 by Dubai’s Supreme Council of Energy, which is responsible for energy policy, governance, and planning in the Emirate. Apart from demand side management, the Strategy sets policy initiatives for diversification of energy mix, ensuring security of gas supply, and enhancing the overall regulatory framework, funding, and capabilities in Dubai’s energy sector. At the federal level, demand management is also positioned as a critical contribution towards achieving the aims of the UAE-wide initiatives: Green Economy for Sustainable Development and Green Growth. These look at the wider picture of economic development in the UAE and set out initiatives in support of UAE’s sustainability beyond the energy sector.

In this context, energy efficiency is considered as an inexpensive way to reduce energy consumption and drive emission of greenhouse gases to a low level. Through appropriate policy and regulatory mechanisms, considerable savings can be achieved in terms of electricity and water consumption, which also brings financial benefits for the Government, businesses, and final consumers. In return, this creates new economic opportunities, which the Emirate of Dubai is keen to promote, enabling it to position itself as a global business hub and as a centre of sustainable and clean energy development.

**Dubai’s demand side management strategy**

In order to achieve its target of 30 per cent energy demand reduction by 2030, Dubai’s Supreme Council of Energy endorsed a detailed Demand Side Management (DSM) Strategy in June 2013. Its scope covers electricity and water and it is the first of its kind in the region. Implementation of the DSM Strategy opens new opportunities for sustainable and efficient businesses by setting out initiatives for implementation up to 2030 and by outlining policies, regulations, awareness schemes, technology, and financing mechanisms. The strategy is based on eight DSM programmes encompassing critical areas where electricity and water savings can be realized.

New building regulations are translated into the Dubai Green Building Code, which covers overall resource efficiency and building vitality, in addition to energy and water performance. The Code (available in full on the Dubai Municipality’s website) entered into full application across Dubai in March 2014, and is based on internationally recognized performance standards. Existing buildings are also targeted by the DSM Strategy. The objective is to have 30,000 buildings retrofitted in Dubai by 2030, representing an expected investment of AED3 billion and achieving electricity and water savings. To drive this initiative, a Super-ESCO (energy service company), Etihad Energy Services, was formed as a fully owned subsidiary of DEWA, the Dubai utility company which is a member of the Supreme Council of Energy. Etihad Energy Services is expected to lead project development, mobilize technical expertise and finance, and provide initial leads favouring the creation of an ESCO market in Dubai. Moreover, a regulatory framework has been put in place by Dubai’s Regulatory and Supervisory Bureau for ESCOs, with a focus on



contracts, accreditation, measurement and verification, and dispute resolution.

.....  
**'... ENERGY EFFICIENCY IS CONSIDERED AS AN INEXPENSIVE WAY TO REDUCE ENERGY CONSUMPTION AND DRIVE EMISSION OF GREENHOUSE GASES TO A LOW LEVEL.'**  
.....

Bearing in mind the importance of water resources in the arid climate of Dubai a separate programme targets increasing the rate of water reuse and the efficiency of irrigation. The aim is to have 80 per cent of Dubai's green areas efficiently irrigated by 2030. Other initiatives include: promotion of district cooling, energy efficient standards and labels for appliances and equipment, efficient outdoor lighting, as well as demand response measures at the utility level. Dubai Carbon Center of Excellence was tasked with monitoring the impact of the implemented initiatives on Dubai's carbon footprint. Overall, implementation of the Strategy is expected to result in considerable savings: 19 terawatt hours of power and 47 billion imperial gallons of water consumption by 2030, and hence better value for Dubai customers.

**Key enabling mechanisms**

However, successful implementation of the Strategy will depend on the deployment of key enabling mechanisms, and the collaboration of concerned stakeholders. These mechanisms are aligned with the current international best practices

found in the implementation of similar programmes worldwide. They will include adequate policy and regulatory frameworks, together with strengthening of institutions and capacities building. An effective implementation of the DSM Strategy will also require collaboration of key stakeholders and close cooperation between private and public actors in Dubai.

Therefore, the establishment of a dedicated DSM agency is planned in the near future as one of the key drivers and symbols of Dubai's commitment to its energy efficiency goals. By providing a platform and 'one-stop-shop' for improved energy use, this new centre of DSM-related expertise will assist Dubai's businesses in achieving better efficiency of their operations and will drive public-private collaborations. Awaiting its creation, a DSM Executive Committee with participation of key stakeholders is ensuring smooth uptake of the necessary regulation and measures, in cooperation with the concerned stakeholders. As an additional support to the Strategy, series of actions are being put in place in the areas of public awareness, DSM-adapted information systems, and measurement and verification.

The Government of Dubai is committed to leading by example in setting high standards of energy efficiency. In 2011, Dubai's Supreme Council of Energy embarked on a series of practical initiatives which improved energy efficiency across key energy

companies in Dubai. These included: Dubai Electricity and Water Authority, Dubai Aluminium, Emirates National Oil Company, Dubai Supply Authority, and Dubai Petroleum. In addition, more than 40 government entities have been mobilized to deploy simple practices such as: setting the thermostat at 24 °C during the day, switching off lights after working hours, and using energy-efficient lighting and solar water heating where applicable. These inexpensive measures are expected to result in significant electricity and water savings – estimated for 2012 alone at a reduction of 30 gigawatt hours and 306 million imperial gallons. These efforts will continue as the Government of Dubai is keen to show the way for the implementation of DSM Strategy. As an example, Dubai's Green Building Code was mandated first for a compulsory application with government entities.

.....  
**'... THE STRATEGY IS EXPECTED TO RESULT IN CONSIDERABLE SAVINGS: 19 TERAWATT HOURS OF POWER AND 47 BILLION IMPERIAL GALLONS OF WATER CONSUMPTION BY 2030 ...'**  
.....

The DSM Strategy spans a period of 17 years, targeting the horizon of 2030. However, Expo 2020, which will take place in Dubai in 2020, is already expected to be a great platform for showcasing the results of the initiatives. In the meantime, Dubai's DSM Strategy will continue its leadership role, and build a more sustainable, better future for the generations to come.

