

# UAE

## Market report

# Water, Energy, Technology and Environment Exhibition (WETEX)

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*March 2011*

## Macroeconomic country data

<b>Population, million</b>	2009: 6.5 (e) 2010: 6.7 (f) 2011: 7.0 (f) 2012: 7.3 (f) 2013: 7.7 (f) 2014: 8.1 (f) 2015: 8.3 (f)
<b>GDP (US\$ m at market exchange rates)</b>	2009: 248,925 (e) 2010: 269,631 (f) 2011: 301,316 (f) 2012: 328,307 (f) 2013: 357,746 (f) 2014: 398,852 (f) 2015: 408,957 (f)
<b>GDP per capita, (US\$ at market exchange rate)</b>	2009: 38,205 (e) 2010: 40,022 (f) 2011: 42,963 (f) 2012: 44,711 (f) 2013: 46,356 (f) 2014: 49,034 (f) 2015: 49,050 (f)
<b>GDP (US\$ m at PPP)</b>	2009: 178,070 (e) 2010: 182,889 (f) 2011: 191,882 (f) 2012: 205,114 (f) 2013: 220,834 (f) 2014: 240,011 (f) 2015: 261,923 (f)
<b>GDP per capita (US\$ at PPP)</b>	2009: 27,330 (e) 2010: 27,147 (f) 2011: 27,360 (f) 2012: 27,933 (f) 2013: 28,615 (f) 2014: 29,506 (f) 2015: 31,415 (f)
<b>Household consumption (US\$ m)</b>	2009: 118,100 (e) 2010: 128,729 (f) 2011: 140,315 (f) 2012: 155,749 (f) 2013: 175,997 (f) 2014: 198,876 (f) 2015: 224,730 (f)
<b>Household consumption per capita (US \$)</b>	2009: 18,130 (e) 2010: 19,110 (f) 2011: 20,010 (f) 2012: 21,210 (f) 2013: 22,810 (f) 2014: 24,450 (f) 2015: 26,954 (f)
<b>Goods Exports, US\$ billion</b>	2008: 164.3 2009: 179.8 2010: 223.1 (f) 2011: 243.2 (f)
<b>Prime rate, % (16.02.2010)</b>	1.00%

<b>UAE Exports (non-oil) to Italy, in thousand Dh. and kg</b>	2008: 102,899,641 (Weight) 2008: 477,278,020 (Value)
<b>Imports, US\$ billion</b>	2008: 153.9 2009: 122.3 2010: 157.3 (f) 2011: 169.9 (f)
<b>UAE Imports from Italy, in Thousand Dh. and kg</b>	2008: 845,357 (Weight) 2008: 21,759,907 (Value)
<b>Trade balance between UAE &amp; Italy, US\$ billion</b>	2008: 62.9 2009: 39.7 2010: 65.8 (f) 2011: 73.3 (f)
<b>Unemployment, % of labour force</b>	2008: 4% 2009: 4.5%
<b>Exchange rate AED/USD (16.02.2011)</b>	3.673
<b>Exchange rate AED/EUR (16.02.2011)</b>	4.962

Source: IMF, UAE Central Bank, Ministry of Economy; (e) estimated, (f) forecast, OANDA

The United Arab Emirates (UAE) is made up of seven Emirates and is part of the Cooperation Council for the Arab States of the Gulf (GCC). Due to the economic crisis a precipitous drop in economic growth from 7.4% in 2008 to an estimated -2.9% in 2009 was observed. But GDP growth is projected to climb to 2.8% in 2010 and 5.2% in 2011. In 2009 the UAE had a GDP of US\$ 245.5 billion, composed by the following sectors: Agriculture (1.1%), industry (48.6%) and services (50.2%). The main trade partners of the UAE are China, India, USA, Japan, Germany, Italy, UK, and Saudi Arabia.

## Sector definition

This report provides a comprehensive overview of the sector of water, energy, technology and environmental trends in the United Arab Emirates.

The relevant products by HS code are:

HS Code	Product
<b>Gas generators</b>	
84051000	Producer gas or water gas generators, with or without their purifiers; acetylene gas generators & similar water process gas generators, with or without their purifiers.
84059000	Parts of producer gas or water gas generators, with or without their purifiers or of acetylene gas generators & similar water process gas generators, with or without their purifiers.
<b>Generators</b>	
85013100	DC motors & DC generators, of an output not exceeding 750 W.
85013200	DC motors & DC generators, of an output exceeding 750 W but not exceeding 75 KW.
85013300	DC motors & DC generators, of an output exceeding 75 KW but not exceeding 375 KW.
85013400	DC motors & DC generators, of an output exceeding 375 KW.
85016100	AC generators (alternators), of an output not exceeding 75 KVA.
85016200	AC generators (alternators), of an output exceeding 75 KVA but not exceeding 375 KVA.
85016300	AC generators (alternators), of an output exceeding 375 KVA but not exceeding 750 KVA.
85016400	AC generators (alternators), of an output exceeding 750 KVA.
85114000	Starter motors & dual purpose starter-generators
85115000	Generators of a kind used for internal combustion engines, n.e.s.

85432000	Signal generators.
<b>Transformers</b>	
85042100	Liquid dielectric transformers, having a power handling capacity not exceeding 650 KVA.
85042200	Liquid dielectric transformers, having a power handling capacity exceeding 650 KVA but not exceeding 10,000 KVA.
85042300	Liquid dielectric transformers, having a power handling capacity exceeding 10,000 KVA.
85043100	Transformers having a power handling capacity not exceeding 1 KVA, other than those of liquid dielectric type.
85043200	Transformers having a power handling capacity exceeding 1 KVA but not exceeding 16 KVA, other than those of liquid dielectric type.
85043300	Transformers having a power handling capacity exceeding 16 KVA but not exceeding 500 KVA, other than those of liquid dielectric type.
85043400	Transformers having a power handling capacity exceeding 500 KVA, other than those of liquid dielectric type.
85049000	Parts of electrical transformers, static converters & inductors.
<b>Resistors</b>	
85333100	Wire wound variable resistors, including rheostats & potentiometers for a power handling capacity not exceeding 20 w.
85333900	Wire wound variable resistors, including rheostats & potentiometers for a power handling capacity exceeding 20 w.
85334000	Variable electrical resistors, including rheostats & potentiometers other than those of wire wound type.
<b>Panels, switches</b>	
85371000	Boards, panels, consoles, desks, cabinets & other bases equipped with two or more apparatus of heading 85.35 or 85.36, for electric control or distribution of electricity for a voltage not exceeding 1000V including those incorporating instruments or appara
85365011	Switches
85372004	Panels
85389000	Fitting Accessories
85444103	Electric Conducts with Switches
85372002	Electric Switch gear low volt
85372015	Control Panels
85372007	Distribution Boards
<b>Tubes, pipes and hoses, and fittings therefore</b>	
391720	Plastic tubes, pipes and hoses, rigid
391730	Other plastic tubes, pipes and hoses
4009	Tubes, pipes and hoses of vulcanized rubber other than hard rubber, with or without their fittings
7303	Tubes, pipes and hollow profiles, of cast iron
7304	Tubes, pipes and hollow profiles, seamless, of iron or steel
<b>Tanks</b>	
7309	Reservoirs, tanks, vats and similar containers for nay material, of iron or steel, of a capacity exceeding 300l
7310	Tanks, casks, drums, cans, boxes and similar containers, for any material, of iron or steel, of a capacity not exceeding 300l
7311	Containers for compressed or liquefied gas, of iron or steel
<b>Machinery, mechanical appliances, electrical equipment</b>	
8401	Nuclear reactors; fuel elements, non-irradiated, for nuclear reactors; machinery and apparatus for isotopic separation
8402	Steam and other vapour generating boilers, super-heated water boilers
8403	Central heating boilers
8410	Hydraulic turbines, water wheels, and regulators therefore

8412	Other engines and motors
8413	Pumps for liquids, whether or not fitted with a measuring device; liquid elevators

## Market assessment

### Local production:

The majority of the water and electricity provision in the UAE lies within the four governmental bodies of Abu Dhabi Water & Electricity Authority (ADWEA, responsible for Abu Dhabi and Fujairah), Dubai Water & Electricity authority (DEWA), Sharjah Water & Electricity Authority (SEWA) and the Federal Water & Electricity Authority (FEWA, responsible for Ajman, Umm Al Qaiwain and Ras Al Khaimah).

The following table shows the main plants for desalination for potable water production, electricity and district cooling in the UAE.

Table: Major desalination, electricity and district cooling plants

Authority	Desalination Plant	Electricity Plant	District Cooling
ADWEA	SCIPCO APC ECPC TAPCO AMPC ESWPC (Fujairah) FAPCO (Fujairah)	SCIPCO APC ECPC TAPCO AMPC ESWPC (Fujairah) FAPCO (Fujairah) Masdar	Tabreed
DEWA	Jebel Ali Power & Desalination Aweer Power & Desalination  (9 plants in total)	Jebel Ali Power & Desalination Aweer Power & Desalination  (9 plants in total)	Empower Dubai Holding Palm District Cooling Emaar District Cooling Gulf District Cooling Emirates District Cooling
SEWA	Wasit Hamriyah Khorfakkan Kalba Abu Mussa Layyah Sajaa KFK Plant	Wasit Hamriyah Khorfakkan Kalba Abu Mussa Layyah	-- (no district cooling)
FEWA	Nakheel Ajman Qidfa Burairat Ghalila New Alzawra	Nakheel Ajman Ghalila Al Zawra Dhaid Umm Al Qaiwain	-- (no district cooling)

Source: ADWEA, DEWA, SEWA, FEWA websites

Production output in the power plants in Abu Dhabi was 34,041.4 MWh in 2009. Installed capacity in Dubai's electricity and desalination plants was 6,997 MW; power consumption was at 30,056

MWh. The largest electricity consumer is the commercial sector with 44.53%, followed by residential buildings with 29.25%

**Energy sector:**

The UAE has the sixth largest natural reserves of oil, with proven oil reserves as per 2011 being with 97.8 billion barrels 9.5% of global proven crude oil reserves. At the current rate of utilization, and excluding any new discoveries, these reserves are estimated to last more than 100 years. Quotas agreed upon within the framework of OPEC limit the UAE's oil production.

The UAE furthermore own the fourth largest natural gas reserves, accounting for proven 214.4 trillion cubic feet in 2011. The oil and gas sector provides around a third of the UAE's Gross National Product, due to a program in recent years of diversification of the economy, but remains the dominant contributor of revenues. The production of crude oil and gas is handled through joint ventures with consortia of international companies.

Electrical power generation and distribution is of high importance to the economic and industrial development of the UAE. The total electricity installed capacity in the UAE for 2008 was 18.5 GW, while it was 9.6 GW in 2001, an increase of 93%. The power generation and distribution expanded rapidly over the last 15 years. By 2010 the capacity is expected to have reached 19.4 GW.

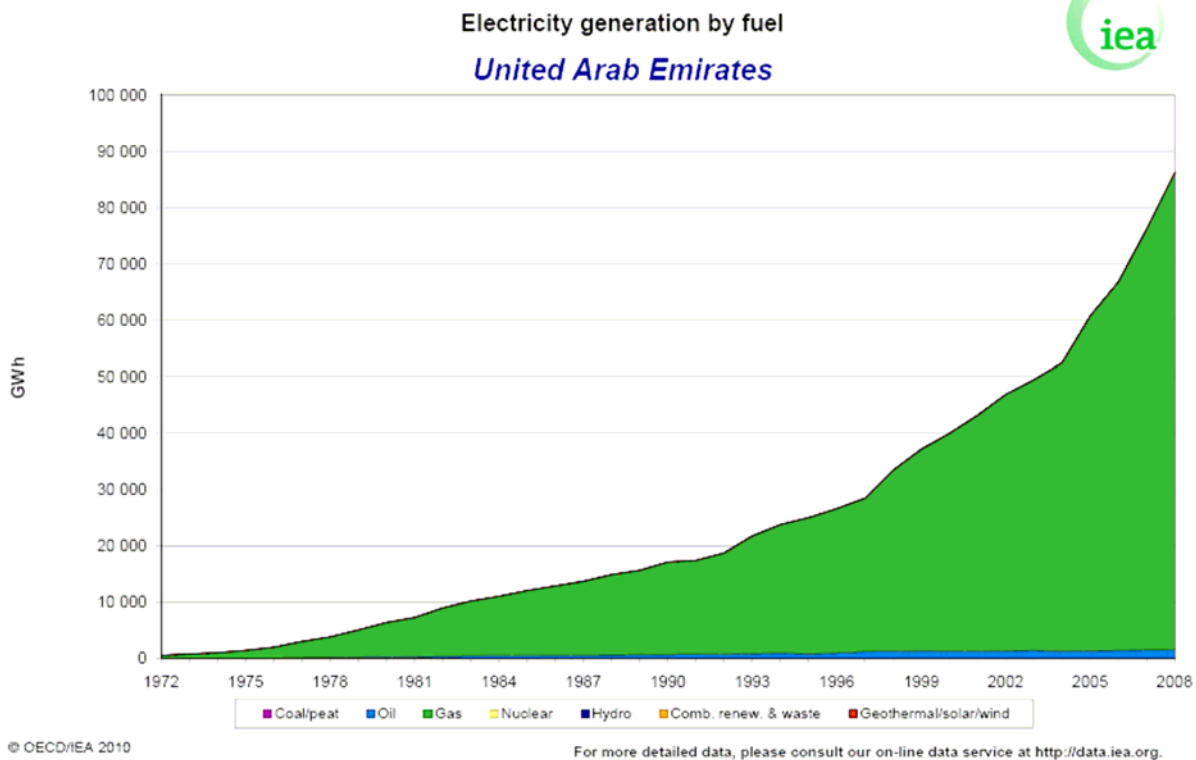
The electricity production of the UAE furthermore was 2009 at 80.9 GWh, and consumption at 70.6 GWh in 2008.

Throughout the UAE 97% of energy production takes place through gas power plants. Diesel generators, steam turbines and solar plants from MASDAR produce so far the remaining electricity.

Abu Dhabi is the dominant energy provider. Following an example of Electricity Generation in Abu Dhabi in 2009 (in 1000 MWh):

In Power Plants:	39219.1
Internal consumption in power plants:	5330.6
Net from power plants:	33885.5
Plus transfer from Takreer and Emal:	182.9
Plus Solarelectricity from MASDAR:	9.9
Sum:	34041.4

The installed capacity in Dubai increased from about 4 GW in 2004 to 6.6 GW in 2007, representing a hike of 14% annual compound average. 6.9 GW has been produced in Dubai in 2009, of which 77% have been generated by gas turbines, while steam turbines and diesel generators generated the rest.



Over one hundred energy-generating projects are currently under development in the region. There is a very recent trend towards privately financed water and power assets in the Middle East, with DEWA planning to introduce IWPP (independent water and power project) like the Hassyan complex. The 1,500MW power station and 120mnmperial-gallons-a-day desalination complex will be built near the Abu Dhabi border and use natural gas as feedstock.

### Energy efficiency:

Electricity demand is expected to grow from 15.5 GWe in 2008 to over 40 GWe in 2020, with natural gas supplies sufficient for only half of this. Imported coal was dismissed as an option due to environmental and energy security implications.

Energy demand in the UAE is growing by approximately 15% per year, more than five times the rate of countries like the USA and UK. Due to this high energy demand new strategies to produce energy as well as to save energy need to be considered and executed. Therefore energy efficiency strategies are needed. By the year 2020 the government aims to produce around 7% of their energy demand with renewable energy and by 2025 around 20% with nuclear energy.

In December 2009, the UAE government awarded a US\$20 billion contract to Korea Electric Power (KEPCO) to build four nuclear reactors. Each reactor will have a capacity of 1,400 megawatts (MW) and free up domestic gas production for export. The first of the reactors is projected to come on-line in May 2017.

Renewable energy instead is struggling to be cost efficient and would need to be subsidized at the moment. However a combination of gas shortages for power generation and a realization that including green technologies on a large scale could provide an economic diversification opportunity while improving to maximizing an environmental image has led to a radical reversal of the UAE's stance.

In January 2009 Abu Dhabi became headquarter of the International Renewable Energy Agency (IRENA). Important for the decision to open the headquarter in Abu Dhabi was Abu Dhabi's Future Energy Company Masdar with its plan to build Masdar City, aimed to be a carbon-free city, but

being downscaled to be a low CO<sub>2</sub> city in the meantime. Further, Masdar is to develop renewable energy production capacity in the UAE and to become a center for cleantech innovation and investment.

Next to Masdar's 10 MW plant, the first commercial production is due to come on stream in 2011 from the 100 MW Shams 1 solar thermal power plant. Further, Masdar and BP Solar are developing a 420 MW hydrogen power plant in combination with carbon capture and storage (CCS). Spending on infrastructure to transmit power from the two new projects will total at least USD 5.6 billion.

### **Water sector:**

Due to the regions climate desalination and wastewater reclamation are the common ways to produce water in the UAE, whereas wastewater is used solely for irrigation. Potable water is produced by desalinating sea water. Water consumption in the UAE is among the highest in the world with a per capita water use of around 550 liters/day. Desalinated water accounts for 80% of the total water consumption. The UAE is now the GCC's second largest desalinated water producer, after Saudi Arabia. Desalinated water comes with a high price tag, since it is produced by using natural gas in the process.

There are five main institutions involved in water resources management in the UAE.

- (1) The Ministry of Agriculture and Fisheries is responsible for the development and management of the agricultural water supply. (1a) The Water and Soil Department of the Ministry is mainly in charge of promoting irrigated agriculture and for the planning, investigation, and management of groundwater resources, the construction of dams for flood control and groundwater recharge, the operation, and maintenance of the hydro-meteorological network, the operation of laboratories and design of the irrigation network.
- (2) The Ministry of Electricity and Water is responsible for the drinking water supply, which includes well drilling, the installation and operation of desalination plants, the operation and maintenance of well fields, water supply and planning.
- (3) The General Water Resources Authority is the federal authority responsible for water management and coordination between the other agencies. It is also responsible for formulating the rules and regulations for matters relating to water in the country, including the registration of the water well drilling companies and licenses for drilling.
- (4) Local Government water departments and authorities in the Emirates, such as ADWEA in Abu Dhabi or DEWA in Dubai are independently responsible for the supply of drinking water and all water affairs in their respective Emirate.
- (5) The Federal Environmental Agency has the power to control and regulate water pollution.

The water industry comprises companies providing products and services for the collection, distribution, treatment and monitoring/analysis of water and waste water for residential, commercial, industrial and agricultural uses. Relevant subsectors are desalination, water treatment (filtration/purification), waste water treatment (black/grey water) and water efficiency (conservation, recycling).

The UAE's investment on water projects increased, along with its population, ever since the country's foundation in 1976. In 2007, investment in local water projects have increased by 20% from US\$11.62 billion to US\$14 billion in 2008, with the number of water production and desalination plants rising from 39 to 55 in the country over the same period. According to data from projects information specialist ProLeads, half of the UAE's water projects in 2008 of US\$14 billion were dedicated for processing wastewater, while water generation and transportation accounted for 36 % and 13% respectively.

ADWEA's production of water increased from 626 million gallons in 2007 and is estimated to be 969 MG in 2013.

DEWA spent US\$1.23 billion on water projects in 2008, of which a high percentage of 80 have been dedicated for water generation and transportation and 20% for processing water.

While Government authorities, such as DEWA, focus activities on the privatization of electricity and water production, the supply and distribution is expected to continue to be state-controlled in the future.

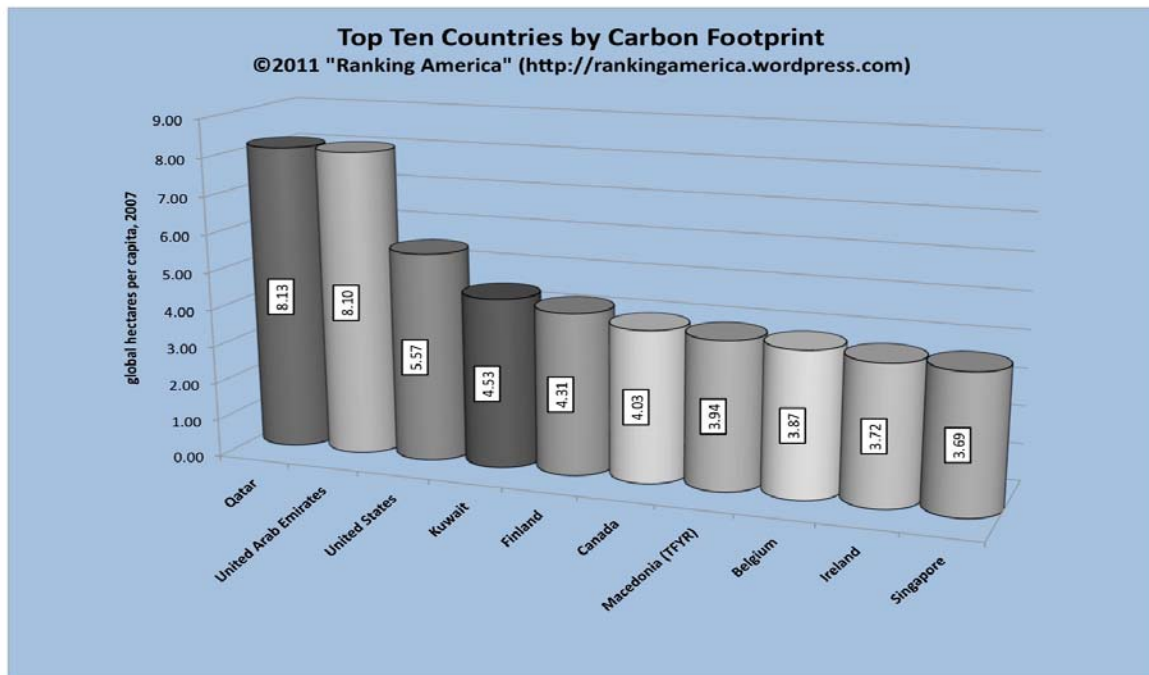
The costs of inefficient water management in the GCC, as per a 2008 World Bank report, amount to approximately 1 to 3% of the Gross Domestic Product every year.

**Environment sector:**

The UAE has a very high impact on the environment due to urbanization and industrial growth showing all in all a very high Carbon Footprint. Global Footprint Network Reports from 2006 and 2008, reporting statistics gathered in 2003 and 2005, respectively, show that the UAE had the world's largest carbon footprint per capita. As a country the UAE was ranking as number 54 in 2003. The latest Global Footprint Network Report of 2010, reporting statistics gathered in 2007, shows the UAE with a still high but slightly decreasing carbon footprint per capita, ranking now as number two. Qatar is now having the number one position with the world's largest carbon footprint per capita.

Energy-related carbon dioxide emission was at 171 million metric tons in 2007, of which natural gas made up 57% and oil 43%. The per capita energy-related carbon dioxide emission was at 38 metric tons.

Currently, GCC countries rank in the top 10 of world waste producers with 120 million tons of waste generated per year. The UAE and Saudi Arabia produce the most waste, with the UAE generating approximately 561,000 tons per day of solid waste, which includes household, commercial, industrial, animal, agricultural, and medical waste.



Data from Global Footprint Network  
[http://www.footprintnetwork.org/en/index.php/GFN/page/footprint\\_for\\_nations/](http://www.footprintnetwork.org/en/index.php/GFN/page/footprint_for_nations/)

**Local consumption:**

## Energy sector:

Cooling consumes the largest amount of electrical energy with up to 53% of total energy consumption in summer. Subsidized electricity and water bills keep the charges lower than the actual costs. The UAE government is currently working to develop a comprehensive Demand Side Management (DMS) system for electricity and water consumption in order educate consumers and influence their behavior to reduce wastage and ensure economic and efficient use of the scarce resources.

Table: Electricity consumption and supply

	2009(a)	2010(b)	2011(b)	2012(b)	2013(b)	2014(b)	2015(b)	2020(b)
<b>Consumption (gwh)</b>								
Industry	6,624	6,704	6,909	7,133	7,564	7,833	8,133	10,215
Transport	0	0	0	0	0	0	0	0
Residential	30,637	32,359	34,406	36,710	40,827	43,388	45,733	57,852
Commercial & public services	22,937	23,190	23,810	24,529	25,323	26,315	27,540	34,197
Other	23,162	23,885	24,597	25,464	26,681	27,877	29,087	35,553
<b>Total</b>	<b>83,361</b>	<b>86,138</b>	<b>89,722</b>	<b>93,837</b>	<b>100,395</b>	<b>105,413</b>	<b>110,493</b>	<b>137,817</b>
% change, per year	0.2	3.3	4.2	4.6	7.0	5.0	4.8	4.6
<b>Capacity (mwe)</b>								
Combustible fuels	15,690	17,690	18,290	19,790	22,190	24,490	26,755	34,565
Nuclear	0	0	0	0	0	0	0	2,800
Hydro	0	0	0	0	0	0	0	0
Non-hydro renewable	0	0	100	175	250	325	400	775
Solar	0	0	100	175	250	325	400	775
<b>Net maximum</b>	<b>15,690</b>	<b>17,690</b>	<b>18,390</b>	<b>19,965</b>	<b>22,440</b>	<b>24,815</b>	<b>27,155</b>	<b>38,140</b>

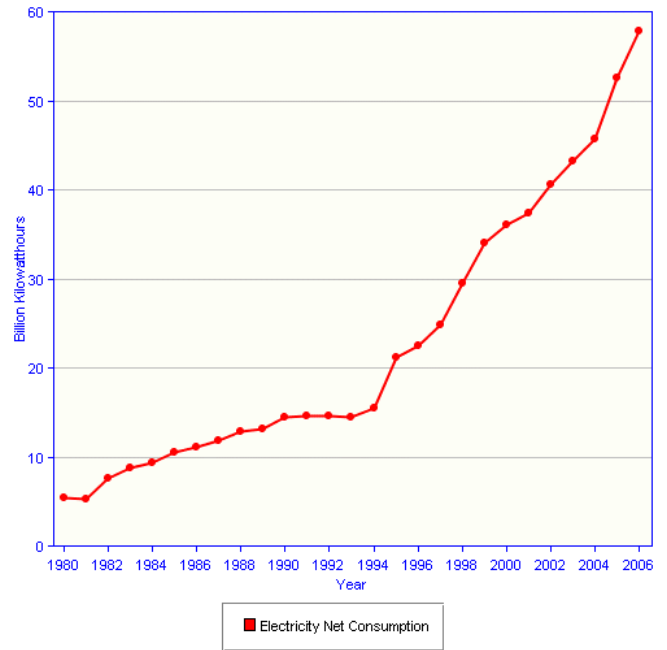
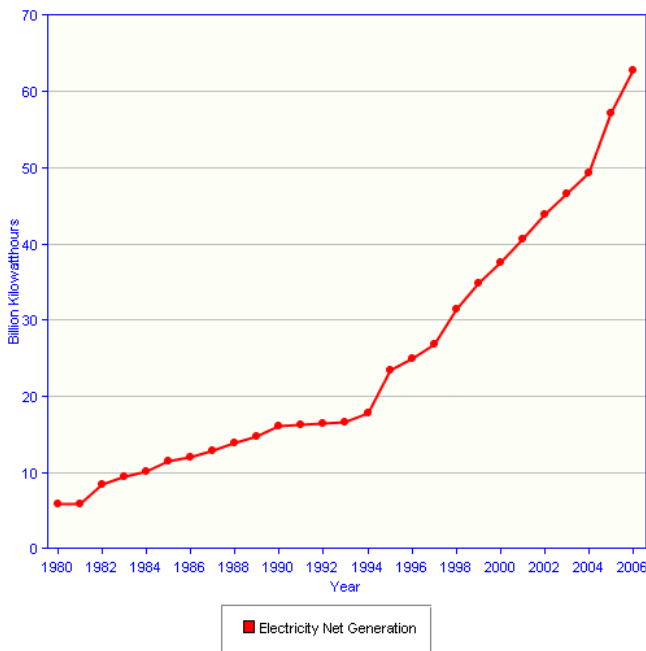
(a) Economist Intelligence Unit estimates. (b) Economist Intelligence Unit forecasts.

Source: Economist Intelligence Unit.

The total energy consumption of the UAE was 2008 at 3.25 quadrillion Btus. The total per capita energy consumption was at 703.3 million Btus in 2008. Energy consumption in the United Arab Emirates has further been growing at an average rate of 10% per annum over the last five years, more than double the global average of 4%. Power consumption rose from 2007 to 2008 by 15%.

## Key Facts:

- UAE's Electricity production: 80.9 GWh (2009 est.)
- UAE's electricity consumption: 70.6 GWh (2008 est.)
- Energy consumption in the UAE is forecasted to triple by 2020
- Arab nations are to spend over US\$120 billion on new power projects between 2008 - 2012
- Private sector companies are now able to construct IWPP, power generation and water desalination facilities in the UAE
- The UAE will invest in nuclear energy, US\$20bn contract for Braka Units 1 and 2 awarded
- Energy consumption in the UAE is forecasted to triple by 2020

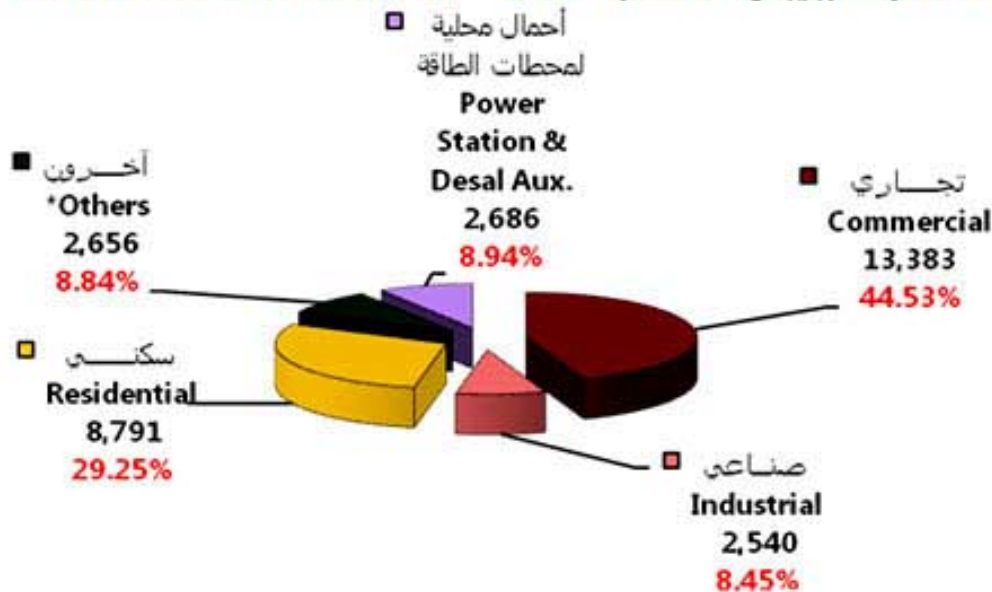


### Electricity consumption in Dubai:

The number of DEWA consumers increased from 467,648 in 2008 to 531,000 in 2009. Consumption was up 13% from 24,756 GWh in 2007 to 27,931 GWh in 2008 and another 7% to 30,056 GWh in 2009. The increase in the number of end users hiked up demand for power plants; electrical switchgear and electric distribution panels and many industries entered the local market to satisfy the demand.

ELECTRICITY		2008	2009
System Energy Requirement	GWh	29,089	31,010
Power Consumption	GWh	27,931	30,056

### Electricity Consumption (GWh) 2009 (الكهرباء المستهلكة (جيجاوات/ ساعة)



As per the table above, the commercial sector consumes with almost 45% most of the electricity in Dubai, followed by the residential sector with almost 30%. It is important to notice, that almost 9% of Dubai's electricity is consumed to produce and desalinate water.

## Water sector:

The level of water consumption in the UAE amounts to some 2.2 billion cbm per person per year. This makes the UAE the third-largest per-head consumer of water. As per 2006 data, the UAE has, as most other countries, the biggest consumption for water in the agricultural sector, accounting for 67%. The UAE's water consumption by private households accounts for 24%, while only 9% is used by industry. Most water consumed in the UAE is desalinated water, due to the minimal sweet water reserves available.

Fresh water networks are installed throughout the region. Sewage drain networks are installed in most Emirates. Ras Al Khaimah and Sharjah have still work to undertake in this field.

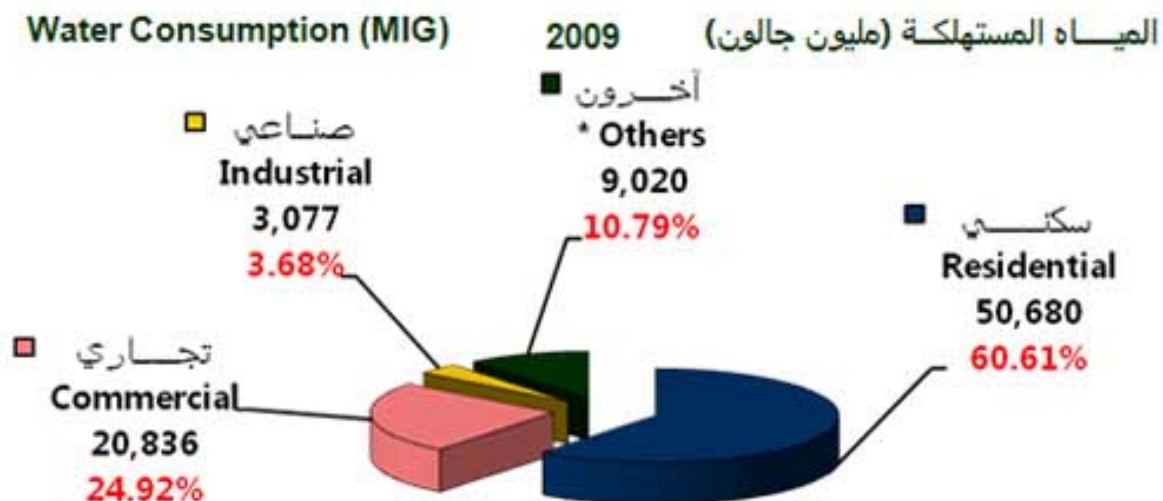
### Water consumption in Dubai:

The water consumption in Dubai was at 83,613 mega imperial gallons (MIG) in 2009, compared to 80,397 in 2008. With Dubai being a big city, the consumption is slightly different, as in the rest of the UAE: private households have consumed 60% of water in 2009.

It has to be noted, that a vast amount of water consumed is processed in district cooling plants and industrial cooling plants.

Commercial companies further use almost a fourth of Dubai's water. There is no mentionable usage of water for the agricultural sector in the town.

WATER		2008	2009
Total System Requirement (Desalination Water Demand)	MIG	88,405	90,823
Desalination Plants Water Supply	MIG	87,196	89,452
Wells	MIG	4,064	4,515
Water Consumption	MIG	80,397	83,613



The majority of municipality contracts for desalination plants are being awarded to consortiums of local/Arab and international players. It is seldom found that larger developments are completely laid in the hands of non-regional companies. Most international enterprises landing big deals are renowned organizations like Veolia, Besix, Sumitomo and Bilfinger & Berger.

## Environment sector:

As established earlier, the re-use of water is an important strategy for protecting the environment and securing biodiversity in the region. Biological wastewater treatment plays a minor role in the region today, with about 30 small projects in the field of constructed wetlands that treat wastewater being completed in the UAE.

Abu Dhabi however has introduced regulations for treated wastewater to be pumped into wetlands, where it is naturally cleaned, can seep away into the ground and thus becomes sweet water. Especially the Oman seems to be also interested in this ecological way to produce drinking water and thus offers industry growth potential.

Only C+D (construction and demolition waste) is being recycled in the UAE so far, with the Al Dhafra C+D recycling facility being awarded to Thies Services Middle East. Recycling of other materials such as paper, plastic, glass, etc. does not take place in the UAE yet. Garbage is generally stored in waste dumps in the desert. Since recycling needs education, it will take time to install a functioning recycling system.

Introducing waste-to-energy plants is seen by experts as a short-term solution to deal with the existing UAE's waste. Such plants are currently under development with tender processes by Dubai Municipality being started.

In Abu Dhabi the Center of Waste Management started to regulate, organize and coordinate waste and recyclables using BOT projects for private companies. A fee for waste produced by companies has been introduced by the Center of Waste Management through Nadafa and is being executed since February 2011 as part of renewing the company license.

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## Analysis of market dynamics:

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### Import and export structure energy sector

#### *2007 Energy Balance for UAE*

in thousand tones of oil equivalent (ktoe) on a net calorific value basis

SUPPLY & CONSUMPTION	Coal	Crude Oil	Petroleum Products	Gas	Combustible Renewable and Waste	Total
Production	0	135440	0	42911	0	178351
Imports	0	0	17430	5267	17	22714
Exports	0	-107017	-18247	-6386	0	-131650

As per the table above, the UAE exports almost 75% of its produced energy, with energy imports taking place mainly in the petroleum products and gas sector. It has to be noted, that the UAE as per the 2007 Energy Balance, is relying only on fossil energy reserves. No supply or consumption in the fields of nuclear energy, or renewable energy resources like Hydro-, Geothermal- or Solar energy has taken place.

### Import and export structure water sector

Water is generally produced as per the demand from within the UAE. It has to be noted that the UAE however has the highest per capita consumption of bottled water in the world.

### Import and export structure environment sector

The environment sector often brings products into the markets that are research-intensive and of latest technology. Countries that do not have fossil resources and thus started to search for competitive and sustainable alternatives generally drive the sector. Industrial nations, having furthermore introduced (partially strict) environmental laws and regulations, such as Japan, Germany, Italy, and South Korea thus breed the major players in the fields of environmental technologies at present. Far-Eastern countries are however catching up in some sectors.

The UAE imports most of its environmental technologies, however some joint ventures with globally active companies have taken place and a very small amount of production facilities, especially in the field of solar energy, will be set up in the UAE.

### **Import and export data relevant product categories**

The main importing countries for product groups relevant for this report in 2008 were China (16%), Germany (10%), Japan, USA and Italy (8.7%), followed by India, South Korea, France and the United Kingdom.

Products most sought after in the market are the following:

IMPORT 2007				IMPORT 2008				IMPORT 2009				IMPORT till October 2010			
HS CODE	WEIGHT KG	VALUE US\$	SHARE	HS CODE	WEIGHT KG	VALUE US\$	SHARE	HS CODE	WEIGHT KG	VALUE US\$	SHARE	HS CODE	WEIGHT KG	VALUE US\$	SHARE
73041000	254,574,010	445,109,993	15.48%	84119900	9,559,970	523,359,000	11.50%	85043400	25,269,151	280,371,043	7.29%	73042900	165,052,092	1,016,757,540	13.90%
85043400	25,091,933	209,137,088	7.27%	84118200	9,534,415	411,195,188	9.03%	85371000	10,681,275	256,409,708	6.67%	85371000	7,588,113	638,232,614	8.70%
73042900	93,429,641	202,170,136	7.03%	85043400	27,783,817	284,892,541	6.26%	85042300	17,691,952	221,375,284	5.76%	84137000	11,690,271	562,970,074	7.69%
84137000	13,751,218	181,281,173	6.31%	73042900	128,010,072	235,690,533	5.18%	73042900	116,587,675	217,330,642	5.65%	84139100	6,442,687	528,720,782	7.23%
85371000	8,272,337	171,030,366	5.95%	73049000	116,251,793	214,551,062	4.71%	73030000	176,123,886	212,121,715	5.52%	85042300	14,737,476	528,344,859	7.23%
84139100	9,556,780	156,927,214	5.46%	84137000	14,120,640	199,726,102	4.39%	84137000	14,580,242	206,534,665	5.37%	85043400	9,583,138	306,878,914	4.20%
85389000	11,387,687	148,279,320	5.16%	85389000	12,979,623	198,562,816	4.36%	85389000	11,958,717	206,531,843	5.37%	73030000	111,274,131	414,424,239	5.69%
84029000	13,475,957	110,158,285	3.83%	85042300	17,188,867	192,782,185	4.23%	84139100	9,505,076	179,801,351	4.68%	85389000	6,627,880	378,553,960	5.18%
73049000	55,045,742	92,945,723	3.23%	84139100	9,991,850	175,772,337	3.86%	73041900	79,819,226	172,548,804	4.49%	73051100	85,872,310	344,078,851	4.70%
Others	421,202,868	1,157,943,861	40.28%	Others	501,050,751	2,115,904,555	46.48%	Others	397,556,045	1,892,856,047	49.22%	Others	159,317,376	2,594,998,338	35.48%
<b>TOTAL</b>	<b>905,788,172</b>	<b>2,874,983,161</b>	<b>100.00%</b>	<b>TOTAL</b>	<b>846,471,798</b>	<b>4,552,436,319</b>	<b>100.00%</b>	<b>TOTAL</b>	<b>859,773,244</b>	<b>3,845,881,103</b>	<b>100.00%</b>	<b>TOTAL</b>	<b>578,185,474</b>	<b>7,313,960,171</b>	<b>100.00%</b>

Imports by product categories 2007 – 2010:

Product category	IMPORT 2007			IMPORT 2008			IMPORT 2009			IMPORT till October 2010		
	WEIGHT KG	VALUE US\$	SHARE	WEIGHT KG	VALUE US\$	SHARE	WEIGHT KG	VALUE US\$	SHARE	WEIGHT KG	VALUE US\$	SHARE
Gas Generators	523,057	12,494,733	0.43%	413,284	13,167,041	0.29%	1,448,391	42,895,780	1.12%	1,083,652	23,290,000	0.32%
Generators	13,843,967	122,104,041	4.25%	16,001,748	139,065,181	3.05%	18,768,121	250,235,708	6.51%	127,574,462	143,731,000	1.95%
Machinery, mechanical appliances, electrical equipment	90,461,776	793,673,702	27.61%	111,840,834	1,997,089,762	43.87%	86,329,611	1,104,612,578	28.72%	10,972,209	123,753,000	1.67%
Panels, switches	19,660,024	319,309,687	11.11%	22,358,419	373,719,121	8.21%	22,639,992	462,941,551	12.04%	37,061,368	649,644,000	8.81%

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<b>Resistors</b>	108,346	2,274,846	0.08%	346,558	5,594,129	0.12%	155,193	8,123,207	0.21%	154,464	2,602,200	0.04%
<b>Tanks</b>	51,002,187	150,262,093	5.23%	54,210,135	166,664,114	3.66%	118,180,224	174,622,088	4.54%	45,952,572	469,381,395	6.36%
<b>Transformers</b>	177,031,757	488,693,294	17.00%	86,160,252	784,544,208	17.23%	73,117,835	769,115,356	20.00%	38,553,707	339,545,000	4.60%
<b> Tubes pipes and hoses, and fittings therefore</b>	553,157,059	986,170,765	34.30%	555,140,569	1,072,592,764	23.56%	539,133,877	1,033,334,835	26.87%	300,438,745	5,626,968,264	76.25%
<b>Total</b>	<b>905,788,172</b>	<b>2,874,983,161</b>	<b>100.00%</b>	<b>846,471,798</b>	<b>4,552,436,319</b>	<b>100.00%</b>	<b>859,773,244</b>	<b>3,845,881,103</b>	<b>100.00%</b>	<b>561,791,179</b>	<b>7,378,914,859</b>	<b>100.00%</b>

Re-Exports by product categories 2007 – 2010:

Product category	RE-EXPORT 2007			RE-EXPORT 2008			RE-EXPORT 2009			RE-EXPORT till October 2010		
	WEIGHT KG	VALUE US\$	SHARE	WEIGHT KG	VALUE US\$	SHARE	WEIGHT KG	VALUE US\$	SHARE	WEIGHT KG	VALUE US\$	SHARE
<b>Gas Generators</b>	53,817	434,496	0.12%	454,431	9,062,777	0.98%	272,308	6,234,786	1.63%	229,769	4,858,510	0.79%
<b>Generators</b>	544,567	10,337,498	2.75%	9,096,854	38,289,734	4.14%	8,459,230	59,186,632	15.46%	7,731,647	37,529,500	6.12%
<b>Machinery, mechanical appliances, electrical equipment</b>	3,347,582	50,063,927	13.29%	51,036,460	656,541,581	70.93%	33,956,803	130,642,299	34.13%	4,607,630	24,038,900	3.52%
<b>Panels, switches</b>	4,912,654	33,113,465	8.79%	5,307,213	47,391,003	5.12%	3,512,662	34,401,499	8.99%	8,048,493	37,266,700	6.08%
<b>Resistors</b>	5,557,485	15,464,344	4.11%	6,394	230,742	0.02%	18,871	2,253,447	0.59%	76,654	1,996,300	0.75%
<b>Tanks</b>	7,752,513	31,050,745	8.25%	11,454,673	36,025,181	3.89%	6,747,580	17,401,243	4.55%	6,173,513	93,348,714	15.23%
<b>Transformers</b>	47,474,430	149,391,518	39.67%	3,123,040	27,210,153	2.94%	1,562,623	9,120,084	2.38%	2,471,420	16,905,600	2.75%
<b> Tubes pipes and hoses, and fittings therefore</b>	52,086,981	86,713,337	23.03%	68,368,395	110,859,741	11.98%	49,109,621	123,528,101	32.27%	21,957,432	396,887,047	64.76%
<b>TOTAL</b>	<b>121,730,029</b>	<b>376,569,331</b>	<b>100.00%</b>	<b>148,847,459</b>	<b>925,610,913</b>	<b>100.00%</b>	<b>103,639,699</b>	<b>382,768,092</b>	<b>100.00%</b>	<b>51,067,019</b>	<b>612,831,271</b>	<b>100.00%</b>

**Exports by product categories 2007 – 2010:**

Product category	EXPORT 2007			EXPORT 2008			EXPORT 2009			EXPORT till October 2010		
	WEIGHT KG	VALUE US\$	SHARE	WEIGHT KG	VALUE US\$	SHARE	WEIGHT KG	VALUE US\$	SHARE	WEIGHT KG	VALUE US\$	SHARE
<b>Gas Generators</b>	0	0	0.00%	0	0	0.00%	0	0	0.00%	0	0	0.00%
<b>Generators</b>	51,900	84,610	0.07%	353,655	1,186,664	0.68%	255,065	6,589,123	3.97%	68,298	1,272,793	0.22%
<b>Machinery, mechanical appliances, electrical equipment</b>	17,904,762	52,197,364	43.18%	32,798,827	65,729,067	37.64%	21,406,040	69,846,991	42.11%	2,931,409	40,647,455	7.12%
<b>Panels, switches</b>	480,817	6,539,147	5.41%	1,064,672	14,715,280	8.43%	598,310	7,218,365	4.35%	1,406,812	80,405,033	13.64%
<b>Resistors</b>	0	0	0.00%	200	409	0.00%	0	0	0.00%	0	0	
<b>Tanks</b>	21,473,483	22,290,233	18.44%	8,989,716	30,620,260	17.53%	7,596,510	15,201,344	9.16%	27,360,084	276,444,450	47.00%
<b>Transformers</b>	2,942,663	19,074,683	15.78%	5,855,233	35,978,214	20.60%	8,617,551	52,204,156	31.47%	4,647,815	81,500,924	14.27%
<b>Tubes pipes and hoses, and fittings therefore</b>	18,063,338	20,686,627	17.11%	24,084,321	26,406,838	15.12%	17,245,353	14,808,135	8.93%	12,640,132	90,621,323	17.75%
<b>TOTAL</b>	<b>60,916,962</b>	<b>120,872,664</b>	<b>100.00%</b>	<b>73,146,623</b>	<b>174,636,732</b>	<b>100.00%</b>	<b>55,718,828</b>	<b>165,868,114</b>	<b>100.00%</b>	<b>49,054,550</b>	<b>570,891,978</b>	<b>100.00%</b>

## Foreign Direct Investments:

The UAE is, after Saudi Arabia the main recipient of foreign direct investment in the Gulf region. The UAE received \$66.2 billion of FDI from 1998 to 2008, representing 19% of total foreign investment in the region. In 2008, the UAE accounted for around 14.2% of the total FDI of about US\$96.48 billion pumped into the Arab World. Gulf countries have remained the main source of inter-Arab investments. In 2009 and 2010 the FDI flow is expected to decline due to several factors, including the slowdown or contraction in the economies of industrial nations, which have been a major source of FDI for Arab states over the past few years.

In the six year period from 2003 to 2008, the UAE experienced the largest rise in 2008 in terms of both FDI project numbers and capital investment, with a 70% rise on project figures compared to 2007. In 2008, the UAE attracted 480 FDI projects consisting of \$4.8 billion of capital investment and the creation of over 87,000 jobs. This accounted for a third of all project numbers, capital investment and job creation in the UAE between Jan 2003 and Jan 2009.

In the fields of environmental technologies, almost no FDI has taken place so far. With abundant fossil resources, this sector is not yet seen as of critical importance to some Governments. Work on Dubai's first plant producing solar panels for instance has been delayed by more than a year. The plant was to produce solar panels that could be integrated into the design of buildings in roofs, skylights and façades to produce electricity.

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## Competition and Italy's market standing

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Italy is the UAE's second largest European trade partner with Italian imports into the UAE worth of 4.2 billion EURO in 2008. Due to the financial crisis, there was however a drop in trade between both countries of 28% in 2009.

Increasing trade between Italy and the Middle East has prompted a high level delegation of Italian companies to visit major industry players in Dubai in a bid to boost the country's exports to the region.

85% of the bilateral trade is accounted for by Italian exports, 15% by UAE exports into Italy. Machinery for any application in areas like rubber, plastics, metalworking, ceramics, luxury items, furniture and building construction are the main Italian exports to the UAE. As Pierluigi Cassani, foreign project department manager at Rimini Fiera, put it "The Middle East is known for its love of high quality, upscale offerings, something that is synonymous with Italian products, ...".

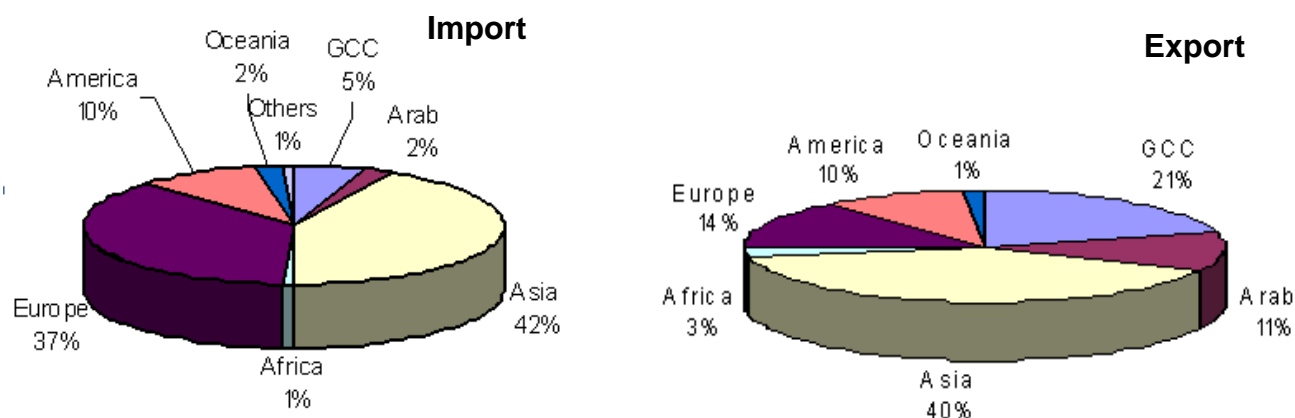
Crude oil is on the other hand imported by Italy from the UAE.

As per the statistics below, Italy exports an impressive 21% of its total exports into the GCC, with the UAE being stated to be the major trade partner from within this region.

### Import and Export Statistics-year 2008:

Country	Imports		Exports		Re-exports	
	Weight (Kgs)	Value (USD)	Weight (Kgs)	Value (USD)	Weight (Kgs)	Value (USD)
Italy	588,812,433	4,266,871,288.3	95,505,807	118,254,201.6	13,243,509	199,069,767.3

Product	Imports	Exports	Re-exports
	Value (USD)	Value( USD)	Value (USD)
Machinery, electrical and electronic equipment	24,366,637,098.4	107,830,339.5	6,339,555,174.9



### Import/Export Statistics of electrical equipment by HS code - Abu Dhabi 2009:

There are no country figures available yet for 2010

HS Code	Total import value Jan – Jun ( USD )	Italy's share
84051000	3,451,941.7	None
84059000	545,401.6	68,185.8
85013100	80,212.5	7,934.1
85013300	336,497.5	65,305.2
85013400	92,135,258.9	None
85016100	1,183,358.0	9,619.3
85016200	92,658,283.4	None
85016300	138,727,820.2	None
85016400	37,383,258.3	1,713,575.2
85114000	144,277.4	3,269.8
85115000	27,073,029.7	1,713,575.2
85042200	7,920,228.3	None
85042300	123,720,729.2	None
85043100	1,550,470.3	231,272.8
85043200	139,066,212.5	1,765.9
85043300	254,898,692.1	4,305.2
85043400	26,030,068.9	3,484,057.2
85049000	711.2	None
85334000	115,864,305.2	None
85371000	50,522,366.5	9,762,735.7
85389000	11,029,621.5	442,738.4

HS Code	Total Export value ( USD )	Italy's share
85016100	1,362.4	<b>None</b>
85016400	309,755.9	
85115000	92,789,237.1	
85042100	6,539.5	
85042200	17,436,068.4	
85043400	49,618.5	
85371000	13,539.2	
85389000	9,992.4	

HS Code	Total Re-export value (USD)	Italy's share
84051000	1,256,803.8	<b>None</b>
84059000	189,941.1	
85013100	208,141.1	
85013200	15,721.3	
85013300	225,519.9	
85016100	6,648.5	
85016400	236,295.9	
85114000	1,478,825.1	
85115000	5,136,909.5	
85042200	424.5	
85043100	103,988.0	
85049000	120,098.1	
85371000	2,550,754.0	
85389000	3,970,593.5	

Source: Foreign Trade Statistics from Abu Dhabi Emirate 2009

## UAE- market trends

### Market trends energy

With increasing demand, the electricity industry in the UAE has been growing consistently each successive year.

A new market presents itself for energy efficiency related to clean technologies in the UAE. To maximize chances for success in the UAE market it helps to prove that technologies can be adapted to the local market/climate/etc., to be independent in the technology area, to be able to generate employment opportunities within the UAE and to be able to reduce energy generating costs and energy waste.

Installation of renewable energy technologies will continue but it has to be noted that the market for photovoltaic and solar thermal technologies is almost saturated with companies from all over the world competing.

A US\$20 billion contract has been awarded to Korea Electric Power (KEPCO) to build four nuclear reactors.

Another trend is that the UAE and other Gulf oil producers set up major diesel generator projects because of the steady expansion in the power sector. In its monthly economic bulletin, Emirates Industrial Bank (EIB) said, demand for such generators in the UAE leaped by 40 per cent to Dh1.23 billion in 2008. "There are several plants in the northern areas of the UAE which have to rely on diesel as a raw material because of lack of easy availability of gas... Almost an estimated 75 per cent of the electricity production in the Northern Emirates is from diesel oil," EIB said.

The western areas are better connected on a common grid for electricity transmission, as these are closer to the large electricity production units in Abu Dhabi. However, the need for diesel electricity generators comes not only from electric companies for further distribution, but there is also a large consumer demand, especially in the not well connected industrial areas of Sharjah and Ajman, isolated rural locations, and in land under fresh development. Diesel generators are imported mainly from Europe and the US, with Caterpillar, Wartsila, MAN, and Agreco being main market players locally. As established, demand for diesel generators comes from several sources, with the small capacity units being furthermore widely used for emergency power as backups. However, many also have a secondary function of feeding power to utility grids during peak demand.

One factor further promising market growth in the energy sector is the demand upswing for retrofit equipment due to the ageing installed base in many industries. Most of the installed power plants in the Middle East for instance are already up to thirty years old. Implementation of more stringent environmental legislations will trigger a demand for retrofit systems as companies will strive to fall in line with new standards.

To conclude for the entire region, the phasing out of oil for power production and the use of more efficient gas-fired combined cycle power plants as well as nuclear energy plants will hamper the momentum of the Middle East electricity markets in the future.

Latest trends are however to reduce Governmental energy and water costs and new approaches are being taken. The introduction of tariffs on energy and consumption-related tariffs on water, are currently being discussed in the UAE.

For the energy sector, Abu Dhabi plans to launch a project, where electricity is stored to be used at peak demand. Peak demand, the time when electricity use is highest, is at the heart of the problem for Middle Eastern Governments. In the UAE, mostly because of the large amounts of air-conditioning used, the peak in summer is significantly higher than minimums observed in winter. Electricity infrastructure, as well as water infrastructure however need to have the capacity to cater to demand in peak times, meaning its operations are less efficient during slack periods.

That gap can be reduced if consumers change their behavior and undertake non-essential activities to times of low demand, which in turn gives them lower prices for electricity.

## **Market trends water**

Like the sector of energy efficiency the water sector offers a new market for efficient water management and water saving clean technologies. To maximize chances for success in the UAE market similar it helps to prove that technologies can be adapted to the local market/climate/etc., to show low operating and maintenance cost, to be able to generate employment opportunities within the UAE and to be able to be easy to us and to show high technology sustainability.

According to World Bank, the Middle East had 5% of the world's population, but only 1% of water in 2008 and warns of an expected water decline in water availability in the region. Per capita water availability will fall by 50% by 2050, serious social and economical consequences are expected, if GCC countries do not adapt their current water management practices.

Dubai has been hardest hit by the global economic downturn, and the clutch of real estate developers that have driven the expansion of the state's projects are now delaying or downsizing their developments. This will have an impact on water demand, particularly on the district cooling air conditioning systems.

A critical element in the water production and consumption will become water pricing. Faced with rapid growth in regional water demand, Governments such as the UAE's can no longer afford to subsidize the high costs of water. In 2008 DEWA requested government permission to raise power and water tariffs for the first time in 10 years, in order to fund its investment program and cover rising costs. It is believed that tariffs will play a critical role in the future of the Middle East water resourcing, in order to decrease consumption.

The expected water crisis in the Middle East is not just inspiring an avalanche of investment, it is also bringing structural reform. Across the region, there has been a move towards greater private sector participation in the water sector. In most countries, water ministries, agencies and utilities have long been blighted by social employment, uncompetitive contract awards and lack of financial accountability. Performance seems to have been not a top priority, and assets were allowed to become dilapidated, with leaks in the water network being allowed to go unchecked. This is changing, with Governments now being focused on improving the effectiveness of the sector.

## Market trends environment

Newer regulations, guidelines, and legislations in the environment sector are on the way. These norms are expected to match international standards on various parameters and should be fully implemented over the next five years. As a first step, on January 1, 2011 the Abu Dhabi government adopted the International Building Code, IBC, comprised of mandatory regulations for the safety and quality of buildings and will govern matters related to building, energy conservation, fire safety, plumbing, mechanical, private sewage disposal, property maintenance and fuel gas; as well as the Estidama Pearl Rating System for new buildings, schools and hospitals.

In Abu Dhabi the Center of Waste Management started to regulate, organize and coordinate waste and recyclables using BOT projects for private companies. A fee for waste produced by companies has been introduced by the Center of Waste Management through Nadafa and is being executed since February 2011 as part of renewing the company license.

Countries in the Middle East are pressured to invest into a greener future and are thus further gravitating towards pollution free power generation technologies, including solar and wind power generation. The weak socio-political environment in the Middle East seems to still slow down various market progressions and the complex maze of regulations, legislations, licensing, and other institutional obstacles are major problems for companies that want to introduce environmental technologies in the Middle East.

After-sales service and maintenance for any introduction of latest environmental technologies into the Middle East are furthermore seen by local environmental experts as factors that companies will have to provide and taken into consideration when planning market entries and expansions.

Chinese and other Far-Eastern manufacturers start to complicate some market dynamics by providing cheaper equipment and European companies have to find ways to address the issue. Companies that can introduce better technologies while providing cost effective solutions are expected to be successful, especially in the fossil-energy-rich and thus highly price-sensitive markets of the GCC.

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## Sector related media and trade fairs

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### *Principal fairs related to the sector*

Fair title	<b>Water, Energy, Technology, Environment (WETEX)</b>
Place	Dubai World Trade Center
Frequency, next edition	Yearly, 8. - 10. March 2011
Short description	The aim of this event is to provide a resourcing platform for technologies and management solutions around the topics energy, water and environment, as well as to inform about latest regional developments in these sectors.
Website	<a href="http://www.wetex.ae">http://www.wetex.ae</a>
Fair title:	<b>WEPower 2011</b>
Place	Dhahran International Exhibition Centre
Frequency, next edition	15. – 17. May, 2011
Short description	The international water, electricity & power generation event returns to

	Dammam, Eastern Province of Saudi Arabia for the 7th year in 2011. Officially supported by the Saudi Ministry of Water & Electricity and sponsored by Saudi Aramco, WEPower is the largest water and power conference and exhibition in the Kingdom.
Website	<a href="http://www.wetex.ae">http://www.wetex.ae</a>
Fair title:	<b>Power Generation Middle East</b>
Place	Abu Dhabi National Exhibition Center
Frequency, next edition	Yearly, 03. – 05. October 2011
Short description	Main areas of interest include: Power generation, transmission & distribution, automation & controls and research & technology.
Website	<a href="http://www.powerandwaterme.com">www.powerandwaterme.com</a>
Fair title:	<b>Power-Gen Middle East</b>
Place	Doha Exhibition Centre
Frequency, next edition	Yearly, 24. – 26. October 2011
Short description	POWER-GEN Middle East provides an annual forum where industry leaders can address technical issues, introduce pioneering technology and share lessons learned about power generation, transmission & distribution and water industries.
Website	<a href="http://www.power-gen-middleeast.com">www.power-gen-middleeast.com</a>
Fair title	<b>The Big 5 International Building and Construction Show</b>
Place	Dubai World Trade Center
Frequency, next edition	Yearly, 21. – 24. November 2011
Short description	The Big 5 a trade fair, featuring National Pavilions from major exporting countries of the world, alongside local developers, contractors, importers, manufacturers and distributors. Over 58,000 buyers and decision makers from the public and private sectors attended the 2008 event.
Website	<a href="http://www.thebig5exhibition.com">http://www.thebig5exhibition.com</a>
Fair title	<b>Solar Tec 2011</b>
Place	Cairo International Conference Center (CICC)
Frequency, next edition	10. – 13. December 2011
Short description	A first time in Egypt, expect leading solar power experts to attend, in addition to major financiers and regulatory bodies. A network of core professionals working together to expand markets. SOLAR -TEC will be hosted alongside lead events within the power and energy field: ELECTRICX, SMART-GRID and WIND-TEC. Last year alone, 18,000 visitors walked through the doors of ELECTRICX and MEFSEC
Website	www. <a href="http://solarenergy-event.com/">http://solarenergy-event.com/</a>
Fair title	<b>World Future Energy Summit (WFES)</b>
Place	Abu Dhabi National Exhibition Center
Frequency, next edition	Yearly, 16. – 19. January 2012
Short description	The event aims to provide a platform for sustainable future energy solutions and is a networking event for industry leaders, investors, scientists, specialists, policymakers and researchers to discuss the

	challenges of rising energy demand and actions to achieve a cleaner and more sustainable future. In 2009, 18,420 visitors from 84 countries took part and 1,124 conference delegates visited the event.
Website	<a href="http://www.worldfutureenergysummit.com">http://www.worldfutureenergysummit.com</a>
Fair title:	<b>Middle East Electricity</b>
Place	Dubai International Exhibition Centre
Frequency, next edition	Yearly, 7. -09. February 2012
Short description	Middle East Electricity is one the largest international gatherings of companies and professionals operating in the power generation, lighting, water, new & renewable and nuclear energy industries.
Website	<a href="http://www.middleeastelectricity.com">www.middleeastelectricity.com</a>

### Sector related magazines

Publication title	<b>FUTURE FUELS MAGAZINE</b>
Frequency	Monthly
Circulation	20,877 copies
Target group	Top and middle management in the power generating industry
Topics	Future energy, sustainability, environmental, corporate responsibility
Website	<a href="http://www.futurefuelsme.com">www.futurefuelsme.com</a>

Publication title	<b>Arab Water World</b>
Frequency	Monthly
Circulation	8,890 copies +15,143 digital copies
Target group	Top and middle management in the MENA water industry
Topics	Water Industry spotlights and industry contracts, energy focus, country/regional reports
Website	<a href="http://www.awwmaq.com">www.awwmaq.com</a>

Publication title	<b>UTILITIES MIDDLE EAST</b>
Frequency	Bi-weekly
Circulation	15,100 copies
Target group	Top and middle management of the utilities industry
Topics	Utilities Middle East delivers insights for senior professionals working within the utilities sector across the GCC. It is targeted at end users from the region's water, electricity and gas industry and includes news, features, comment, data, analysis and case studies covering the sector.
Website	<a href="http://www.utilities-me.com">www.utilities-me.com</a>

Publication title	<b>UTILITIES DIRECTORY</b>
Frequency	Yearly
Circulation	8,000 print copies, online version on <a href="http://www.arabianoilandgas.com">www.arabianoilandgas.com</a> , reaches 21,000 decision makers in total
Target group	Contractors, consultants, developers, government authorities
Topics	The Utilities Middle East Directory is the ultimate reference tool for contractors, consultants, major project developers and Government authorities in the GCC region. It is also a reference point for organizations in the Utilities industry to source various suppliers and services, identify new business partners and build better business networks.
Website	<a href="http://www.utilities-me.com">www.utilities-me.com</a>

## Market forecast

### Market forecast energy sector

The Government has cut its 10-year forecast for electricity demand by about 30 per cent, suggesting it expects the recent global recession to have a long-lasting impact on the national economy.

It was expected that the country will have 19,500MW of installed capacity in 2010.

The UAE's water and electricity sector is set to attract Dhs35bn (\$9.5bn) worth of investments over the next five years. ADWEA predicted in 2009 that the largest Emirate alone would need 19,500MW of power generation capacity in 2020, a threefold increase from the 6,542MW of peak electricity demand projected for 2008.

A big slowdown in the rate by which electricity demand is now expected to grow in Dubai, the Emirate with the next biggest economy and population, has to be noted. The BMI report forecasts that the UAE will account for 5.77% of the MENA regional power generation by 2011.

The report forecasts an increase in regional power generation to 1,473 twh by 2011, representing an increase of 29.7% between 2007 and 2011.

In 2007, the thermal power generation was estimated to be 1,005 twh, accounting for 88.4% of the total electricity supplied in the MENA region. This is very much opposed to power generation trends in the fossil-resource-rich UAE, where less than 3% of the electricity is produced using thermal power generation with steam turbines.

The report forecast for 2011 is 1,289 twh, implying a 28.3% growth; thus the market share of thermal power generation is estimated to be slightly reduced to 87.5% in the MENA region. This reduction is partly anticipated in response to environmental pressures to promote renewable energy sources, as well as to nuclear power generation.

BMI forecasts that electricity consumption per capita will increase by 2% over the period 2006-2011 in the UAE. The UAE's overall power consumption is expected to increase from an estimated 56.6 twh in 2006 to 85 twh by 2011.

It is expected that the consumption demand for electricity will be met by the generation capacity.

On another front, the MENA region is turning towards adopting nuclear power projects to meet their energy demands. As mentioned earlier, a \$20 billion contract has been awarded to Korea Electric Power (KEPCO) to build four nuclear reactors.

The UAE anticipates its electricity requirements to rise from an expected 19.4GW in 2010 to 40 GW in 2020, according to the Eurasia Group. The proposed nuclear plant will provide about 3% of

the power supply to the market in the UAE by 2020 with the start-up of about 1GW of nuclear power, and by 2025 nuclear power is expected to supply about 15% to the market.

Over one hundred energy-generating projects are currently under development in the region. As stated earlier, the UAE's steadily large hunger for electricity and fresh water results in big projects for new power and desalination plants. In the years 2009 to 2011 USD 24.4 billion will be spent on power plants. The budget for electricity distribution is USD 2.0 billion.

The largest electricity projects in the UAE (in billion USD)			
Project	Developer	Status	Budget
UAE Nuclear Power Program	ENEC	Contracted	20.0
Abu Dhabi Nuclear Plant	ADWEA	Study	8.0
Coal-fired Power Plant in Dubai	DEWA	Study	5.0
Lehbab Power Plant 5,000 MW	DEWA	Study	5.0
Hassyan Power Plant (Station P) – Phase 3	DEWA	Intended	4.0
Hydrogen Power and Desalination Plant – Ras	DEWA	Tender	3.0
Hydrogen Power Plant in Abu Dhabi	Masdar	FEED	2.2
Coal-fired Power Plant	Ajman Gov.	Execution	2.0
Shuweihat IWPP S3 – Power	ADWEA	Tender	2.0
Fujairah IWPP	ADWEA	Execution	2.0

However, with latest economic developments, DEWA is expected to stagger its developments since the Emirate faces a sharp fall in expatriate population numbers in 2009 - 2010. Contract awards for the Hassyan power and water project at Jebel Ali had first been delayed since DEWA regards Dubai as having a sufficient supply of power and water since the middle of 2009. Now DEWA announced to launch the tender in March 2011. ADWEA may further decide to dispense with the competitive tendering process that have been the mainstay of its expansion plans, in order to speed up the construction of new IWPPs.

### Market forecast water sector

The Middle East will invest heavily in water production and reclamation of wastewater in the future in order to deal with the expected water crisis. Between 2009 and 2011 USD 3.9 billion will for instance be allocated to desalination projects in the UAE. Saudi Arabia alone will invest an estimated US\$53bn into water production to meet an estimated demand of 10.7 million cubic meters per day by 2020, up from 5.5 million cubic meters per day in 2008.

The UAE's capital and biggest Emirates, Abu Dhabi, forecasts its water peak demand to grow about 5% per annum between 2007 and 2020.

The water problematic in the Middle East is however not just inspiring an avalanche of investment, it is also bringing structural reform. As stated earlier, across the region, there has been a move towards greater private sector participation in the water sector. In most countries water ministries, agencies and utilities have long been blighted by social employment, uncompetitive contract awards and lack of financial accountability. Performance, seem to have been not a top priority, and assets were allowed to become dilapidated. Leaks in the water network were allowed to go unchecked. This is changing, with Governments now being focused on improving the effectiveness of the sector.

Key water resource and water demand management issues in the Middle East, including an in-depth look at wastewater treatment and reuse will furthermore become a key priority for regional Governments. Producing a cubic meter of desalinated water costs about US\$1.5, whereas the treatment of sewage using for instance advanced membrane technology costs only about US\$ 0.30 per cubic meter. This treated wastewater could be used for non-potable purposes, such as in district cooling plants and for landscape irrigation, in order to cut the UAE's desalinated water demand by an estimated 25%. It could furthermore be pumped in constructed wetland to seep away and thus increase natural sweet water levels.

Adaptation of integrated water resources management, public-private partnerships and placement of national policies thus will have to dominate the region's future, since current trends are not sustainable.

### **Market forecast environment sector**

Government support is most critical to the successful implementation of environmental technologies. Due to the current economical situation and Dubai's financial situation, there is not much short-term governmental expenditure into environmental technologies expected by experts, since they oftentimes increase initial investment costs compared to more conventional technologies. A high price-sensitivity from local governments towards environmental technologies can be further explained by the current abundance of fossil energy resources and lack of environmental laws and regulations installed.

Last year, Abu Dhabi however announced a target of generating seven per cent of its electricity from renewable sources by 2020. Plans on how that will be achieved have not been announced.

Solar energy is a renewable energy source that offers a big potential in this sunny region and experts have projected that the Middle East can profit significantly from it.

Using only concentrated solar power, which uses solar heat to produce electricity; the region can reach a capacity of 9 GW by 2020. To put that into perspective, Dubai's entire power-generating capacity was 6.9 GW in 2009.

With a solar module installed in Abu Dhabi generating twice as much as in a cloudy region in Europe, photovoltaic energy production furthermore offers huge growth potentials in this region and the technology is expected to become widely adopted in the region over the next 20 years.

With no overall regulations in place and only minimal government support currently (especially in the other Emirates apart from the capital), photovoltaic is, as with other environmental technologies, only expected to find its way into the local market in the mid to long term.

Solar thermal power however is a technology that is expected to find usage also in the short term, since it is an already very efficient technology and easier to bring into the market through individual developers.

In order to reduce the region's waste problems, the introduction of a deposit system for bottles, cans, paper and other materials might help. Furthermore, education towards recycling might help reducing the problem in the long term. Waste-to-energy-plants are not the most ecological solution, but seem to offer the only short-term solution for the UAE and other GCC nations.

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