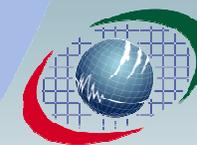


# National Center of Meteorology & Seismology

## NCMS - UAE



المركز الوطني للأرصاد الجوية والزلازل  
National Center of Meteorology & Seismology

## ❖ Geographic & Topographic features of the UAE.

- ❑ UAE is located :
  - between latitudes 22.5° - 26°N and longitudes 51° - 56°E.
  - Southeast of the Arabian Gulf between Qatar peninsula to the west and the Musandum peninsula to the east except Fujairah, which is situated on coast of the Oman Sea.
  
- ❑ UAE comprises of :
  - a large number of offshore islands and coral reefs
  - small gulfs and coastline, which have profound influence on its climate.
  
- ❑ UAE has two distinct land elevation Zones. The larger sandy desert zone covers over 90% of the county's surface .The mountain zone consists of mountain ranges parallel to the eastern coast.

## ➤ Winter

- ❑ The Siberian high pressure intensifies and extends over Pakistan and Iran, inducing the northeastern flow. The cold and dry northeasterly flow locally known as “**Elnashi**” , gets the temperatures down.
- ❑ Weather systems are associated with the passage of upper troughs through region causing rain and strong wind.
- ❑ The amount and frequency of rainfall vary greatly from year to year.

## ➤ Winter

- ❑ The upper trough freshens south-easterly winds, sometimes, causing sandstorm conditions over inland areas.
- ❑ As the upper trough begins to move away eastwards, a strong low-level northwesterly flow usually develops, this is known locally as the “**Shamal**” from the Arabic word meaning north)
- ❑ This “Shamal” brings colder air down.
- ❑ The absolute minimum temperatures are lowest in the interior areas and are close to freezing point in the winter.

## ➤ Winter

- ❑ The passage of these troughs causes:
  - the weather generally fine and sunny
  - Blowing of light diurnal land and sea breezes
  - Formation of fog during early morning

## ➤ Spring

- ❑ Moving from winter to spring the frequency of westerly disturbances gradually decrease.
- ❑ Rain and thunderstorms can still occur if an active weather system cross the area, but this more likely over the northern Gulf.
- ❑ Maximum temperatures start increasing rapidly as the frequency of colder northwesterly shamals approaching the region decreases.

## ➤ Summer

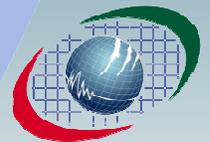
- ❑ By Afternoon thunderstorms often develop over the Hajar Mountains to the east of Al Ain associated with rainfall over mountains and surrounding plains also can lead to a gust front.
- ❑ Thunderstorms can also develop during the summer months but usually only over eastern Hajar Mountains due to a side effect of the Indian monsoon over Oman Sea.
- ❑ The mountains provide an elevated heat source during the daytime which combine with local convergence between land and sea breezes, leading to instability locally.

## ➤ Summer

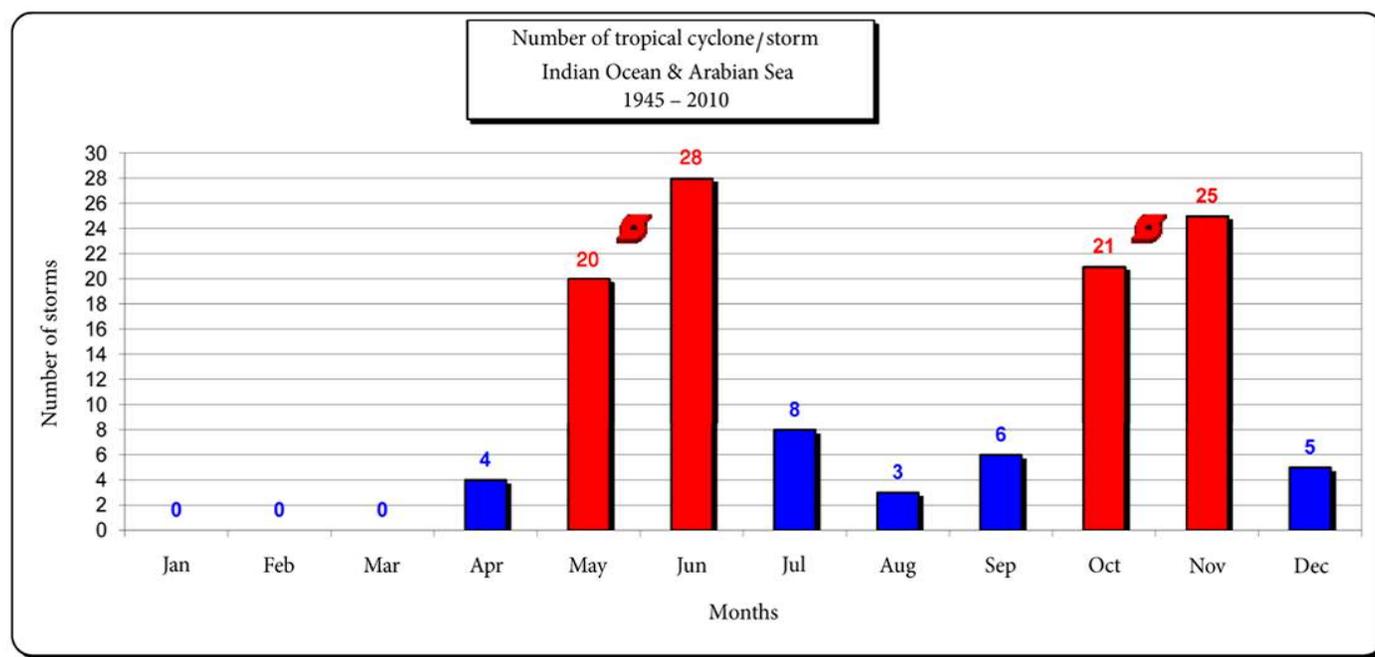
- ❑ Strong southeasterly winds also blow in summer when a deep heat low develops over the Rub Al Khali, lifting the sand from the interior and transport it over the coastal strip.
- ❑ The highest temperatures occur in the southwestern part of the emirates.
- ❑ The most uncomfortable conditions occur in the late summer along the coastal with relative humidity above 90%.
- ❑ Minimum Temperatures start to decrease in September and this leads to an increase in the incidences of early morning fog.

## ➤ Autumn

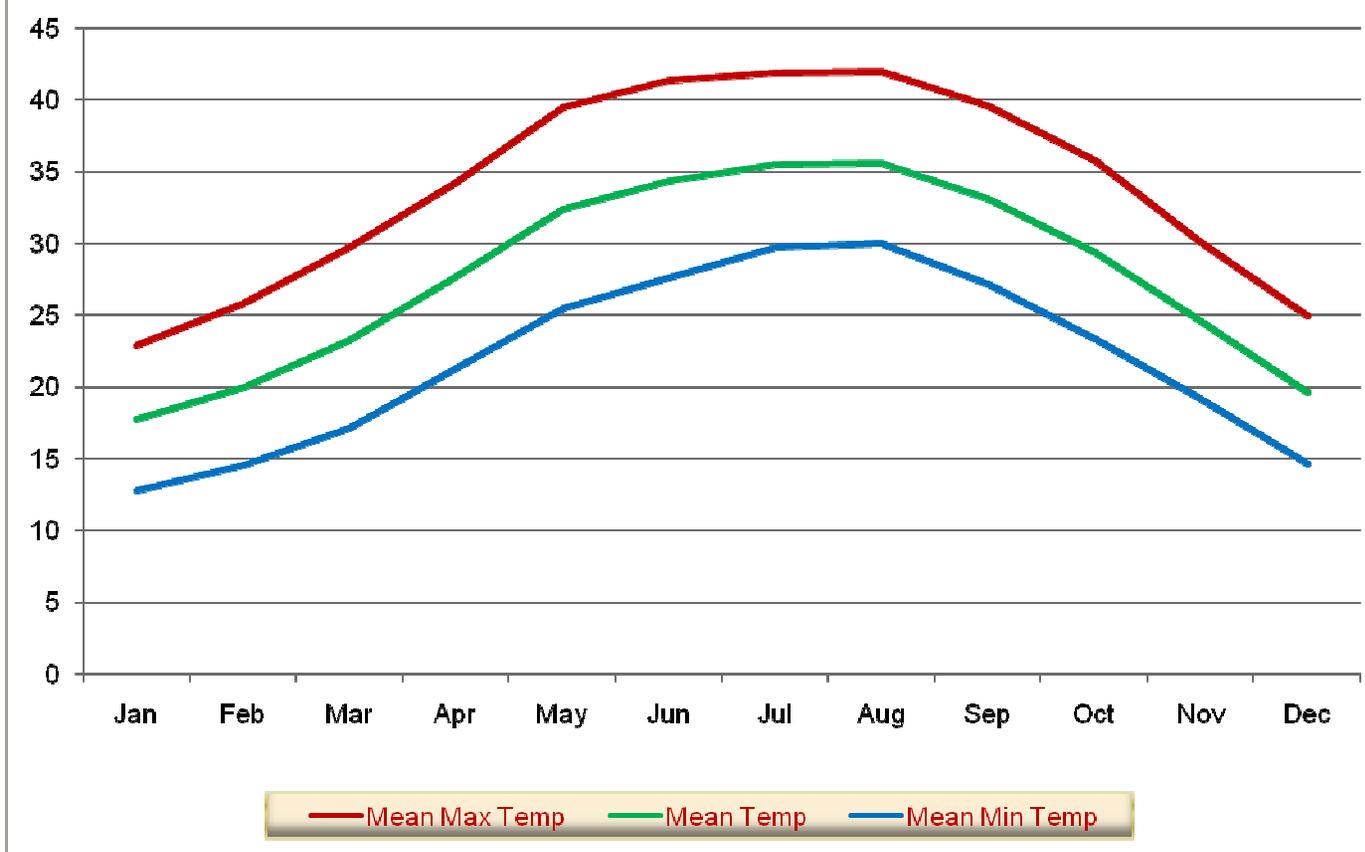
- ❑ Most settled and pleasant time of the year with weak pressure gradient over the gulf.
- ❑ Land & sea breezes continue to dominate the local weather .
- ❑ A significant decrease in the temperatures during this period.
- ❑ The frequency of fog increases due to the overnight cooling .
- ❑ By last decade of November the upper trough moves through the region bringing more extensive cloud , associated with some rain.



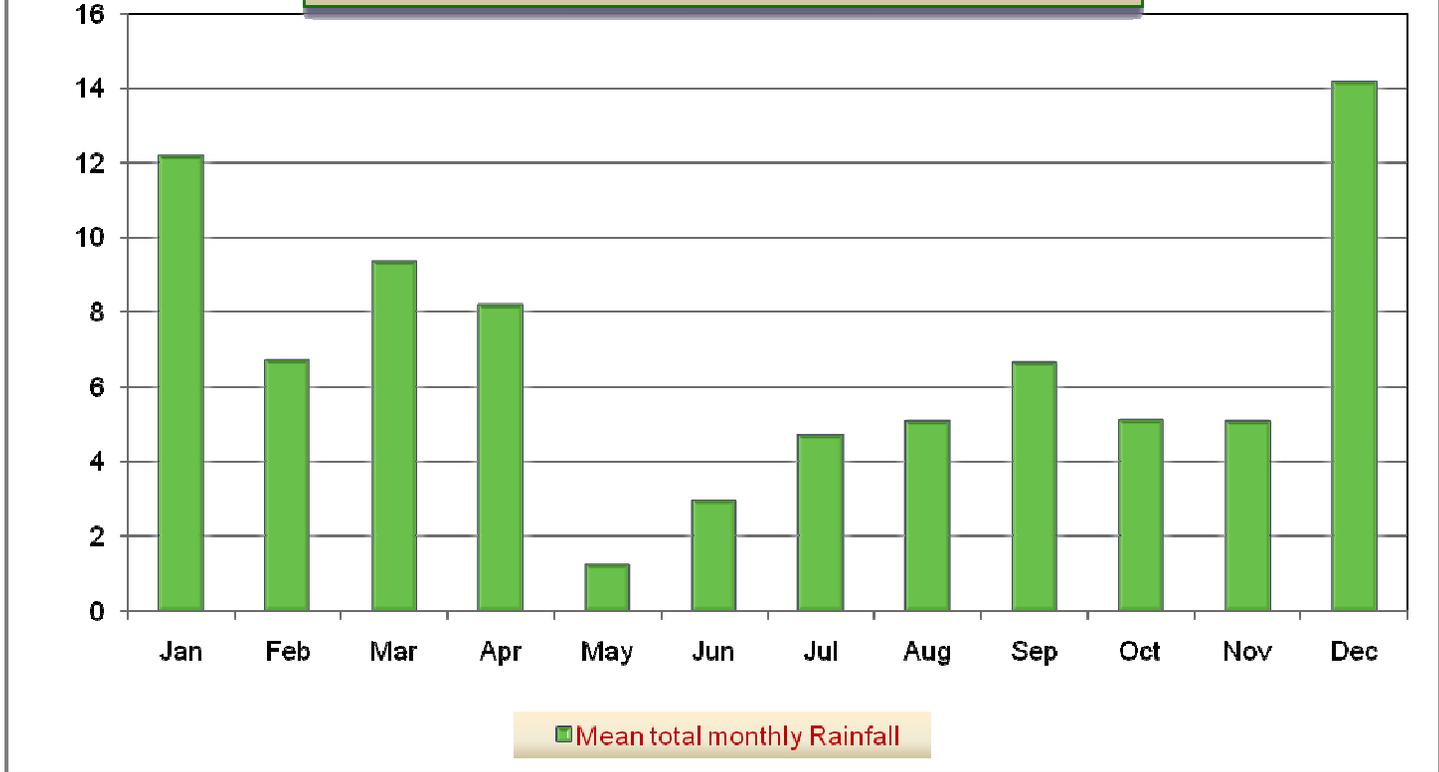
# ➤ Tropical Cyclone



### UAE Temperatures (°C) 2003 - 2012

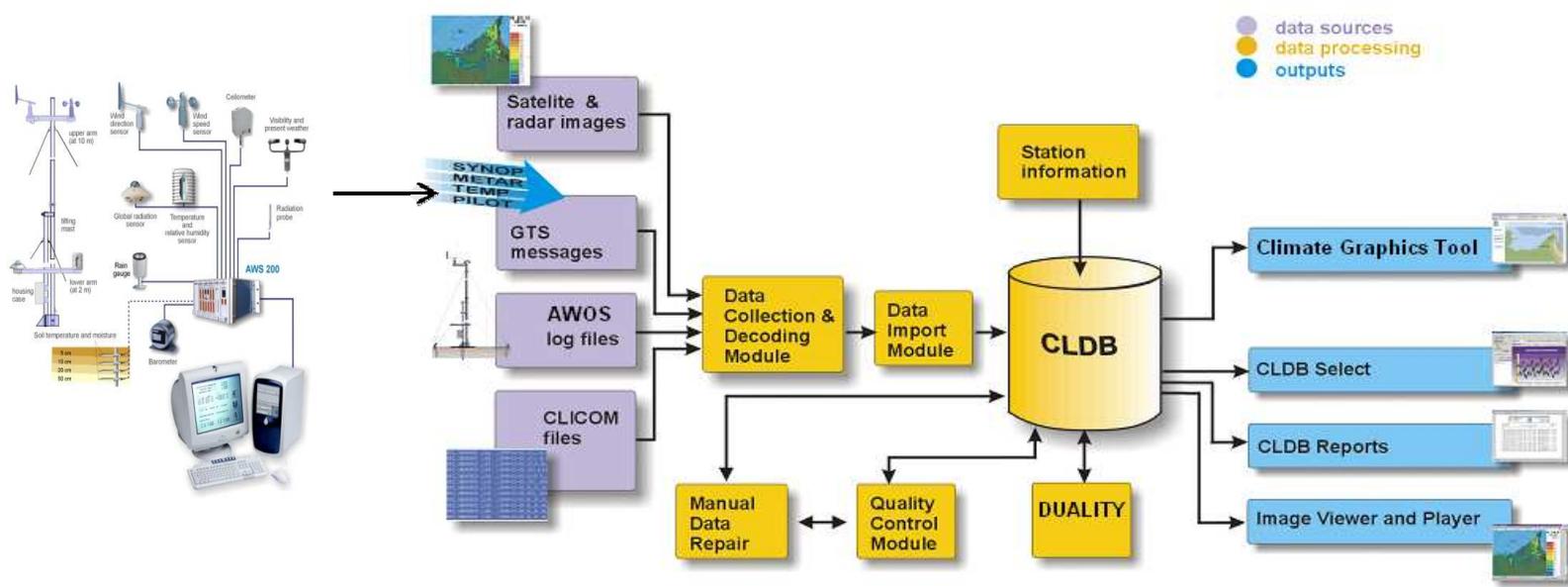


UAE Mean Total monthly Rainfall (mm)  
2003 - 2012



## ❖ Overview of climate data availability.

- ❑ NCMS has successfully collected, checked, processed and finally archived the whole climatic data of UAE in climate database CLDB.
- ❑ NCMS has Surface, Upper air, and Marine stations.
- ❑ NCMS issues monthly and annual climate reports for synoptic & AWS stations in UAE.



- ❖ Climatological data are controlled for quality at some reasonable level and archived in such a fashion as to be readily accessible ,retrievable.



## ❖ NCMS STATIONS NETWORK



❑ Conventional (Manual) Stations (7 Airports).



❑ Automatic weather stations (63 stations).



❑ Upper air (RS 92 Radiosonde).



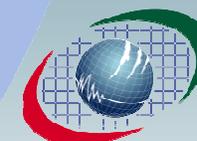
❑ Ozone (1 Brewer).



❑ Marine (8 Platforms).



❑ Radar (6 Radars ).



اتخذت الإمارات في السنوات الأخيرة خطوات مهمة لتعزيز استدامة استخدام موارد الطاقة والمياه، حيث اعتمدت معايير إلزامية متعلقة بكفاءة الطاقة والمياه في المباني والأجهزة المنزلية وقطاع الزراعة، كما تم اعتماد أوائل برامج إنتاج الطاقة منخفضة الكربون في المنطقة، مثل مشاريع رائدة في مجال الطاقة المتجددة والتقاط الكربون وتخزينه ومشاريع الطاقة النووية.



## The UAE and Actions on Climate Change

### Controlling emissions:

#### **Renewable Energy:**

The UAE lacks many of the most widespread renewable energy resources, with no potential for hydroelectric power or tidal power and relatively little biomass. However, we are blessed with sunshine. Abu Dhabi has set a renewable energy target which it expects to meet largely through solar power, and 2010 has seen work begin on one of the world's largest concentrating solar power plants. We are also developing geothermal cooling at Masdar City.

#### **Peaceful Nuclear Power:**

The UAE views peaceful nuclear energy as a significant contributor to meet increasing future electricity demand and as part of its strategy for the overall reduction in carbon emissions. With its nearly zero carbon footprint and high availability factor, it complements the UAE's other renewable and low carbon energy sources, such as solar and clean fossil fuel power plants. A sizeable nuclear energy sector is being developed in the UAE which consists of four nuclear power reactors and the associated infrastructure, the first of which is scheduled for commercial operation in 2017.

#### **Energy Efficiency and Conservation:**

From new standards for appliances such as air conditioning, to the cutting edge technologies being demonstrated in Masdar City, the UAE is putting efficiency at the heart of its domestic energy strategy.

#### **Transport:**

Transportation is one of the fastest-growing sources of emissions worldwide. We are investing in new mass transit systems such as Dubai's light rail system and a proposed high speed train.

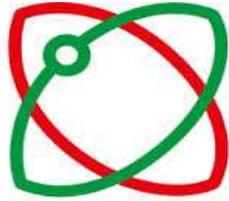
#### **Building Design:**

New energy efficiency standards for buildings are being set at a national level for the UAE. In addition, the Urban Planning Council has developed the new Estidama label for sustainable buildings, the first standard adapted for this region and climate.

#### **Carbon Capture and Storage (clean fossil fuels):**

Carbon capture and storage (CCS) is a means of mitigating climate change by capturing carbon dioxide (CO<sub>2</sub>) from large point sources such as power plants and storing it safely underground instead of releasing it into the atmosphere. The potential impact of CCS is huge. The Intergovernmental Panel on Climate Change says CCS could contribute between 10% and 55% of the cumulative worldwide carbon mitigation effort over the next 90 years. Technology for capturing of CO<sub>2</sub> is already commercially available for large CO<sub>2</sub> emitters, such as power plants. Storage of CO<sub>2</sub>, on the other hand is a relatively untried concept. The UAE is developing a major CCS project.





مؤسسة الإمارات للطاقة النووية  
Emirates Nuclear Energy Corporation

## OUR MISSION

To deliver safe, clean, efficient and reliable [nuclear energy](#) to the United Arab Emirates grid by 2017 and beyond.

## OUR VISION

Powering the future growth and prosperity of the United Arab Emirates through a safe, clean, efficient and reliable civil nuclear energy program.

## OUR RESPONSIBILITIES

ENEC is committed to:

Delivering safe, clean, efficient nuclear energy to the United Arab Emirates.

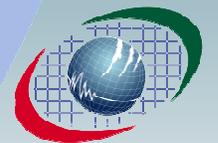
Forming strategic partnerships with local and international companies and pursuing investment opportunities to support the growth of the nuclear energy industry in the UAE.

Partnering with academic institutions to develop the human capital required for the UAE's nuclear energy industry well into the future.

Providing the UAE community with accurate and up-to-date information about the program in line with the UAE's commitment to complete operational transparency.



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WHAT ARE YOU LOOKING FOR 



## Pioneering Future Energy

Making profitable and sound investments in renewable energy and sustainable technology.

Masdar

Research

Investment

Energy

City

ABU DHABI  
SUSTAINABILITY WEEK

Media

News: Masdar and IFC Seek to Join Forces on Renewable Energy Investment

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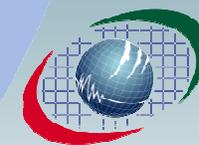
@ CONNECT

📅 EVENTS

📍 LOCATION

✉️ SIGN UP

👤 HUMAN RESOURCES

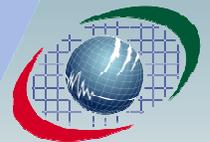


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## IRENA

The International Renewable Energy Agency (IRENA) was officially established in Bonn on 26 January 2009. Following the deposit of the 25th instrument of ratification, the IRENA statute entered into force on July 8, 2010 – this marks an historical step for the growth of an international agency. To Date 148 states and the European Union signed the Statute of the Agency; amongst them are 48 African, 38 European, 35 Asian, 17 American and 10 Australia/Oceania States. Mandated by these governments worldwide, IRENA will promote the widespread and increased adoption and sustainable use of all forms or renewable energy. Acting as the global voice for renewable energies, IRENA will facilitate access to all relevant renewable energy information, including technical data, economic data and renewable resource potential data. IRENA will share experiences on best practices and lessons learned regarding policy frameworks, capacity-building projects, available finance mechanisms and renewable energy related energy efficiency measures.



## Masdar City

Masdar City, one the most sustainable cities in the world, is part of Abu Dhabi's pursuit to become a global centre of excellence in the renewable energy and clean technology. Masdar City project was initiated by the Abu Dhabi Future Energy Company (Masdar) in 2006 to build a city, which will rely entirely on solar energy and other renewable energy sources, with a sustainable, zero-carbon, zero-waste ecology.

As an emerging hub for knowledge, business, research and development, Masdar, Arabic for source, provides a supportive environment for innovation and entrepreneurship, where ventures can thrive and innovation can evolve. The city is being constructed 17 kilometres (11 miles) from Downtown Abu Dhabi near Abu Dhabi International Airport.

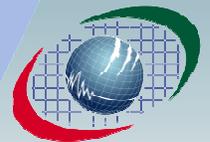
## Shams 1

The largest concentrated solar power plant (CSP) in operation in the world, is a breakthrough for renewable energy development and advanced technology

The plant in Madinat Zayed in Abu Dhabi's Western Region, will generate 100 megawatts (MW) of clean and sustainable energy - enough to power 20,000 homes, and the biggest step so far toward's Abu Dhabi's goal of getting seven per cent of its energy from renewable sources by 2020

When fully operational, the plant, spanning 2.5 square kilometres, will displace a CO2 equivalent to planting 1.5 million trees, or taking about 15,000 cars off the road.

Shams 1, a joint venture between Masdar (60 per cent), Total (20 per cent) and Abengoa Solar (20 percent), was designed and developed by Shams Power Company.





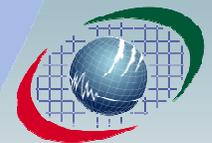
## Dubai Carbon

A leading knowledge repository on Carbon matters with a specific regional focus; accessible to all stakeholders in order to create strategies and climate change funds. As the first of our kind in the Middle East, we will provide the public and private sector with the highest level of expertise to quantify and operationalize environmental upgrades.

The close link to decision makers and touch points with authorities are our strategic advantages. This provides a valuable source of expertise and a network that ensures our services comply with both, the national strategy and international standards.

Dubai Carbon has worked closely with the Clean Development Mechanism (CDM) as a Middle East Project proponent on public sector support for more effective and stronger implementation of environmental incentives for efficiency generation.

Our core competency is the development of sustainable business strategies and solutions through consulting, research, and cross-sector collaboration. Through our expertise in the environment, social development, economic modeling, and governance and accountability, Dubai Carbon guides local and global companies toward creating a sustainable world.



# Thanks



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