حكومة دبي
GOVERNMENT OF DUBAI

هيئة كهرباء ومياه دبي
Dubai Electricity & Water Authority

المجلس الأعلى للطاقة
Supreme Council of Energy

مجمّع محمد بن راشد آل مكتوم للطاقة الشمسية
MOHAMMED BIN RASHID AL MAKTOUM SOLAR PARK
المستقبل يبدأ هنا
The Future Starts Here

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هيئة كهرباء ومياه دبي
Dubai Electricity & Water Authority

بإدارة وتشغيل

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The Future Starts Here

"The UAE is striving to develop and boost its rich resources and expertise in the international energy markets and enhance its leading role as a world centre for renewable energy research and development."

His Highness Sheikh Khalifa bin Zayed Al Nahyan
The President of the UAE

"We recognise that preserving our energy resources will be one of the greatest challenges in our drive towards sustainable development. This, however, will not materialise unless the different facets of our society adopt energy conservation principles in their core values. The future generations will be the chief beneficiary of our achievements and the best judge of what we accomplish in this field."

His Highness Sheikh Mohammed bin Rashid Al Maktoum
Vice President and Prime Minister of the UAE and Ruler of Dubai

مجمّع محمد بن راشد آل مكتوم للطاقة الشمسية
MOHAMMED BIN RASHID AL MAKTOUM SOLAR PARK

His Highness
Sheikh Ahmed bin Saeed Al Maktoum
Chairman of The Dubai Supreme Council of Energy

The United Arab Emirates and Dubai in particular, has made unprecedented achievements which have put the UAE on the list of countries that are more competitive globally. This was the result of the efforts of our wise leadership to create a healthy business environment characterised by the availability of high levels of modern standards, quality and efficiency of services.

On the renewable energy side, the UAE has taken a global leading role by being selected to host the Headquarter of the International Renewable Energy Agency (IRENA).

Electricity is an important part of the infrastructure that helps the sustainable development of any country. Therefore we had to develop policies and mechanisms to ensure the availability and reliability of power supply, for the current and future generations through the adoption of best practices and effective programmes to ensure efficient management while preserving the environment and ensuring resource sustainability.

The Dubai Supreme Council of Energy aims to ensure availability and reliability of energy supply while preserving natural resources through effective steps to address the challenges of climate change and the application and development of renewable energy technologies.

Mohammed bin Rashid Al Maktoum Solar Park is leading the inclusion of renewable resources in Dubai's energy mix and we count on the contribution of the park to Dubai's sustainability.

We ask Allah to bless and guide us to the future we aspire to reach, and that Dubai's efforts to increase the use of renewable energies will match the efforts of nations around the world as we all strive to preserve our resources and protect our environment.

His Highness Sheikh Ahmed bin Saeed Al Maktoum

مجمّع محمد بن راشد آل مكتوم للطاقة الشمسية
MOHAMMED BIN RASHID AL MAKTOUM SOLAR PARK

His Excellency Saeed Mohammed Al Tayer
Vice Chairman of the
Dubai Supreme Council of Energy
MD & CEO of DEWA

The remarkable vision and steady guidance of His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, has provided a roadmap for our ambitious initiatives and development projects to realise the UAE Vision 2021, which aims to make the UAE one of the best countries in the world by 2021 and strengthen Dubai's position as a global hub for trade, finance and tourism and a model for the world in achieving the highest standards of energy efficiency and renewable-energy use.

The Mohammed bin Rashid Al Maktoum Solar Park is a key factor in achieving the Green Economy for Sustainable Development initiative launched by His Highness with the aim of building a green economy in the UAE and achieving sustainable development.

The Solar Park offers plenty of promising investment opportunities that strengthen energy partnerships and investments between the public and private sectors, as the future phases of the Solar Park will produce renewable energy based on the Independent Power Producer model.

Today, we celebrate the harvest of our hard work and our efforts to implement our strategy for diversifying the energy mix in Dubai by increasing the use of solar energy to provide 7% of Dubai's total power output by 2020 and 25% by 2030.

On 22 October 2013 His Highness inaugurated the first project, with a capacity of 13 MW of electricity using photovoltaic technology. The project was completed with the participation and financing of the Dubai Supreme Council of Energy and under the supervision and management of DEWA.

His Highness also initiated the second project of the Solar Park using the Independent Power Producer model based on a partnership between the public and the private sectors, and with a capacity of 100MW. The launch of the Solar Park coincided with World Energy Day endorsed by His Highness along with 54 countries in the world, the United Nations, the Arab League and the African Union, in the Dubai Declaration of Energy for All on 22nd October 2012.

In January 2015, we have announced that the production capacity of the second phase of the Mohammed bin Rashid Al Maktoum Solar Park will be increased from 100 MW to 200 MW and will be operational by April 2017. DEWA also selected the consortium led by Saudi ACWA and Spain's TSK as a preferred bidder based on its proposed LCOE (Levelised Cost of Energy).

The UAE and Dubai have impressed the world with remarkable achievements and will continue to always be at the forefront to achieve prosperity for the country and happiness for its citizens.

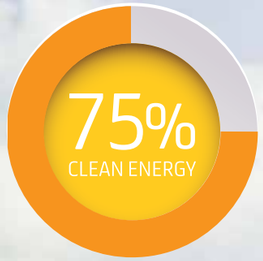
His Excellency Saeed Mohammed Al Tayer

Dubai Clean Energy Strategy 2050

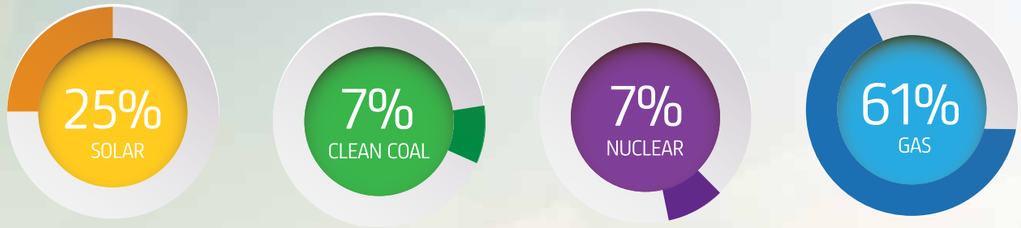
His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, launched the Dubai Clean Energy Strategy 2050, to make Dubai a global centre of clean energy and green economy.

The strategy consists of five main pillars: Infrastructure, legislation, funding, building capacities and skills, environment friendly energy mix.

The fifth pillar is focused on creating an environment friendly energy mix comprising solar energy 25%, nuclear power 7%, clean coal 7%, gas 61% by 2030. The mix will gradually increase the employment of clean energy sources to 75% by 2050.



By 2050



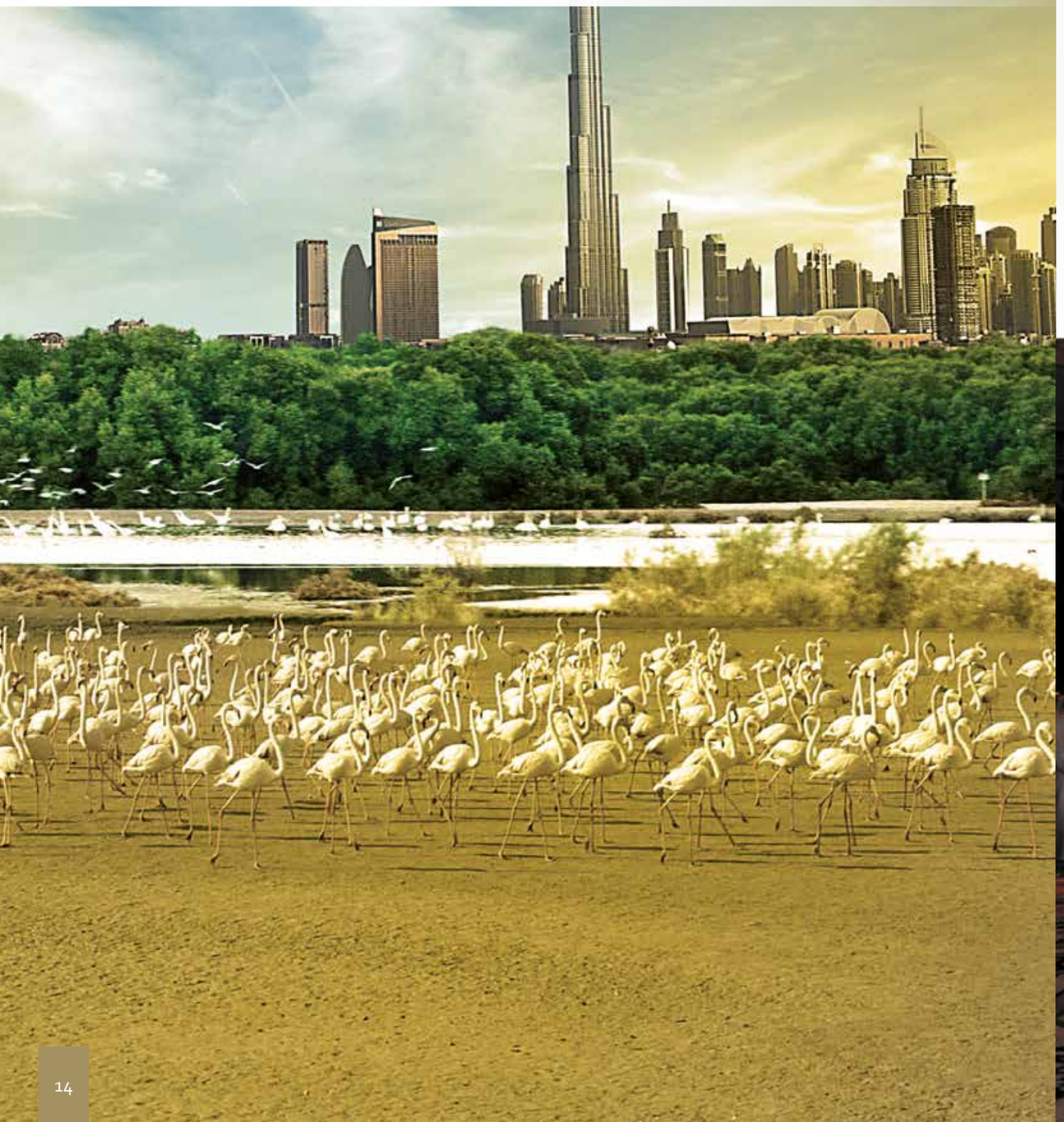
Environment Friendly Energy Mix By 2030

About the Energy Strategy

UAE's Ideal Location for Solar Energy Generation

The location of the United Arab Emirates and Dubai within the sunbelt highlights solar energy's major role as a renewable source of energy. In Dubai, available global irradiation usable by photovoltaic (PV) technology varies between (2,105 - 2,164) kWh/m²a (kWh per square meter per annum) and the direct part of the irradiation (DNI - Direct Normal Irradiance) which is used by Concentrated Solar Power (CSP) is between (1,856 – 2,069) kWh/m²a. These figures mean solar energy is an optimal energy source for Dubai.

Mohammed bin Rashid Al Maktoum Solar Park



Mohammed bin Rashid Al Maktoum Solar Park is part of Dubai's energy diversification initiatives to meet our renewable resource contribution targets.

In January 2012, His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai launched the Dubai Programme for Renewable Energy and announced the Mohammed bin Rashid Al Maktoum Solar Park, which is the first and the biggest single-site solar park in the world with a capacity to produce 5,000 MW by 2030.

Mohammed bin Rashid Al Maktoum Solar Park

Goals & Objectives

- Contribute positively towards Dubai's vision, brand, growth, society and environment. Support the energy diversification strategy
- Support Dubai Integrated Energy Strategy 2030
- Promote sustainability and preserve Earth's natural resources by using renewable resource in electricity generation
- Develop UAE expertise in the field of solar and renewable energy
- Promote Research and Development and involve local universities and colleges in the field of renewable energy
- Contribute to improving the technology used for electricity generation by solar energy
- Reduce carbon footprint
- Convert desert wastelands into a natural resource environment

Mohammed bin Rashid Al Maktoum Solar Park Projects:

- Electricity generation projects with a capacity of 5,000 MW by 2030
- Innovation Centre
- Research and Development Centre (R&D)
- Solar Test Facility in the R&D Centre
- University and Training Centre

The park, under the umbrella of the Dubai Supreme Council of Energy (DSCE) is managed and operated by Dubai Electricity and Water Authority (DEWA) and it will be the largest (in terms of capacity) in the region.

Location : The project is located in Seih Al Dahal, on the Dubai - Al Ain road
Technology : Photovoltaic (PV) & Concentrated Solar Power Technologies (CSP)

Leadership and Innovation

Expected to be the largest solar park in the region.

Technology

The solar park will use PV and CSP, as this project is a long-term plan, new future technologies can be implemented.

Environment

Solar power systems generate no air pollution during operation. The environmental, health and safety impact during operation are minimal. Using solar power reduces the carbon footprint compared to current technologies using fossil fuels.

Projects Implemented

Shams Dubai – Connecting Solar Energy to Houses and Buildings

Within the Distributed Renewable Resources Generation Programme, Dubai Electricity and Water Authority has recently launched the Shams Dubai Initiative, which allows electricity customers to generate their own green electricity with solar PV panels, also connecting them to the power distribution grid. Any surplus not used on site can be exported to the grid, and offset from the customer consumption under a net metering scheme. The initiative implements Executive Council resolution number 46 of 2014, issued by HH Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai and Chairman of the Dubai Executive Council. The Authority has developed and published the complementary regulation (including technical standards to ensure safe and reliable connection to the grid) and launched a certification scheme for PV experts and an eligibility scheme for solar equipment compliant with the technical standards.

Mohammed bin Rashid Al Maktoum Solar Park First Project - 13MW

His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai inaugurated the first project of the Mohammed bin Rashid Al Maktoum Solar Park on 22nd October 2013, with a capacity of 13 MW. The project is financed by Dubai Supreme Council of Energy and is managed and operated by the Dubai Electricity and Water Authority. The inauguration coincided with World Energy Day, which takes place on 22nd October every year.

Facts and Figures

- The largest operating solar photovoltaic (PV) plant in the Middle East and North Africa
- The generating capacity is 13MW of clean energy
- The project generates 24 million kilowatt hours (kWh) of electricity per year
- The project required more than 1.4 million man-hours to complete, all of which were accident-free
- The project reduces greenhouse gas emissions by 15,000 metric tons of CO_2 per year
- Performance Ratio is more than 83%
- The project is powered by 152,880 PV modules
- The project covers an area of 280,000 square metres
- Operating date: 22nd October 2013

Ongoing Projects

Mohammed bin Rashid Al Maktoum Solar Park Second Project - 200MW

His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, initiated the second project of the Mohammed bin Rashid Al Maktoum Solar Park, with a capacity of 100 MW. The second phase will be completed in partnership with the public and private sectors based on the Independent Power Producer model.

In January 2015, Dubai Electricity and Water Authority (DEWA), announced that the production capacity of the second phase of the Mohammed bin Rashid Al Maktoum Solar Park will be increased from 100 MW to 200 MW and will be operational by April 2017. DEWA also selected the consortium led by Saudi ACWA and Spain's TSK as a preferred bidder based on its proposed LCOE (Levelised Cost of Energy).

Innovation Centre

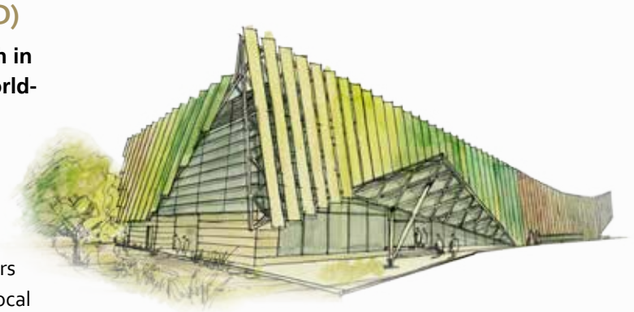
Interactive centre equipped with the latest technologies in renewable and clean energy

Objectives

- Further developing national skills in the field of energy
- Promoting the competitive edge of businesses in Dubai, developing renewable energy technologies, and supporting the region's energy industry
- Spreading awareness on climate change and sustainable energy
- Creating interactive presentations and organising educational tours for visitors
- Educating people about solar energy and the Solar Park, and highlighting Dubai's leading role in the field of sustainability

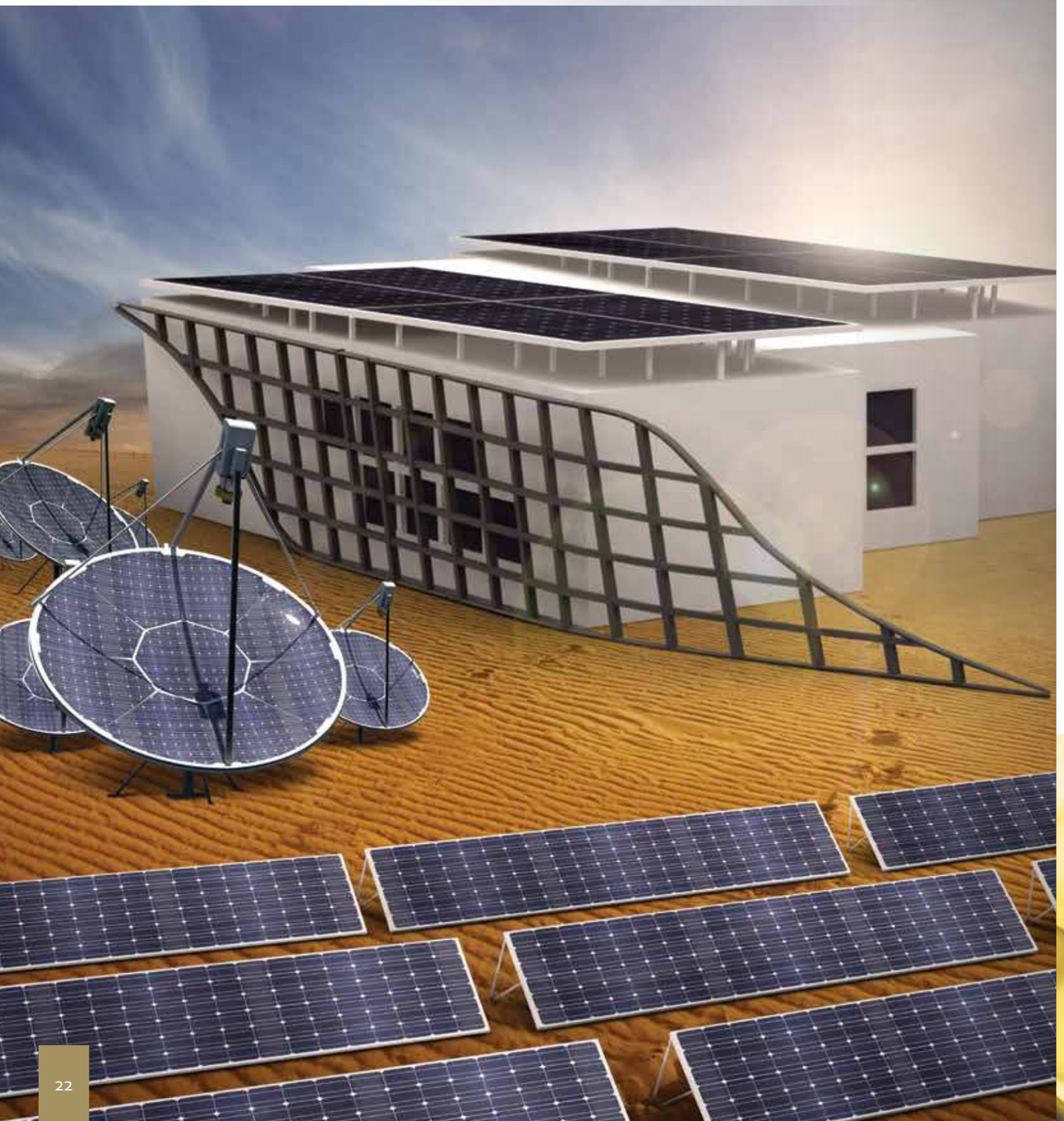
Research & Development Centre (R&D)

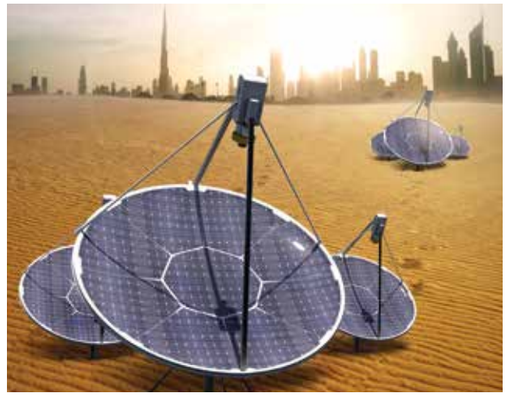
The Centre of Excellence for Innovative Research in Energy & Water aims to shape a Sustainable World-Class Utility



- Conducting studies to meet industrial and social requirements
- Leading regional efforts for scientific research on renewable energy
- Serving as a link between researchers and developers
- Developing formal channels linking universities to local and global research centres
- Developing output strategies for innovative, productive ideas

Research and Development in Solar Energy



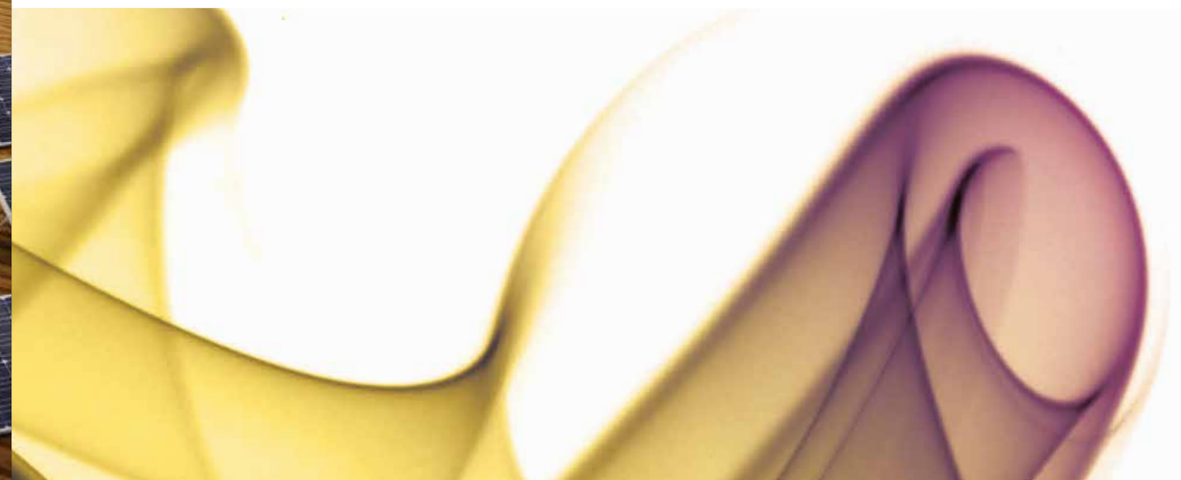


Research & Development is focusing, among other topics, on the reliability and durability of photovoltaic solar panels for prolonged periods in severe conditions. The data gathered from tests on these solar panels is also being used to improve their efficiency in the region, given its climate. The Centre directs its efforts on utility-scale open spaces and urban settings in Dubai. This research helps minimising risk and improving reliability in the future and helps promote the uptake of solar power in the region. DEWA's R&D team is working on a series of international initiatives to develop cutting-edge research and is participating in other regional programmes as well.

DEWA Solar Testing Facility, a part of the R&D Centre, includes:

- **Photovoltaic Solar Testing Facility**
  DEWA has developed a world-class Solar Powered PV Testing Facility for the purpose of studying & evaluating the performance, long term stability and reliability PV technologies (both commercial and under development) under real local weather conditions. This facility concept is for innovative technology demonstrations with key companies in renewable energies and for international collaboration on soiling and dust mitigation on PV equipment. The tests that are currently being performed will set a baseline for development of specifications, tests and standards for PV equipment in the region. Current test program involves more than 25 module commercial types from more than 20 manufacturers. Operation and maintenance strategies are also in the core of our research topics.

- **CSP Testing Facility**
  The CSP Testing Facility will study CSP technologies in a desert climate, using 10 units with a total power capacity of 110kW.

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