

DUBAI SOLAR SHOW

PART OF
WETEX



Solar Business Opportunities in Dubai

Organized by:



هيئة كهرباء ومياه دبي
Dubai Electricity & Water Authority



23 – 25 October 2017

Dubai International Convention & Exhibition Centre, Dubai , UAE

Middle East Solar Outlook

SOLAR (PV AND CSP) INSTALLATION OVERVIEW (MWAC) ⁽¹⁾				
Country	Operational	Under Execution ⁽²⁾	Tendered in 2016	Percentage Target in 2020 ⁽³⁾
Morocco	160	350	245	12%
Algeria	270	80	2000	15%
UAE	128	200	1150	10%
Jordan	30	320	120	12%
Egypt	70	1800	250	8%
Saudi Arabia	23	62	170	8%
Kuwait	12	60	85	10%
Sum	693	2872	4020	

(1) Centralised and distributed solar
 (2) PPA signing, awarded, construction, etc.
 (3) Percentage of power generation capacity for 2020

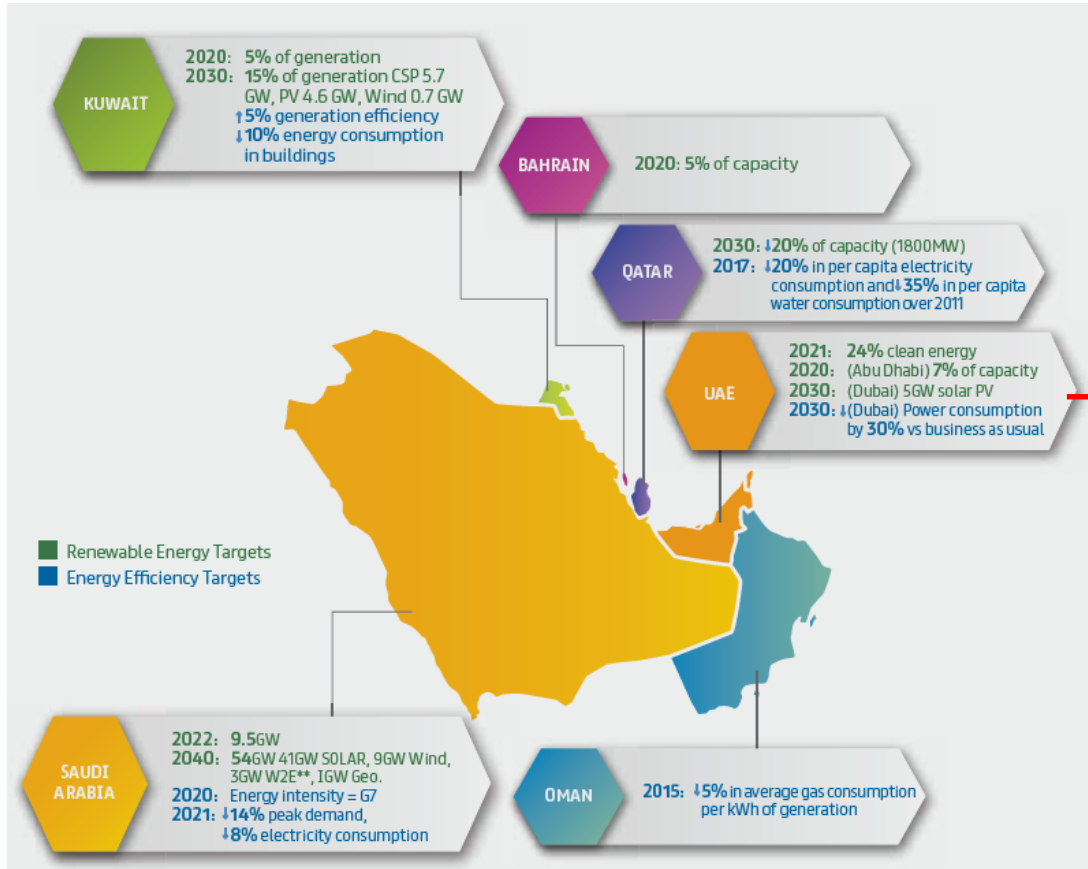
Source: MESIA

Source: Middle East Solar industry Association

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GCC Sustainable Plan



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 and the direct part of the irradiation (DNI) which is used by Concentrated Solar Power (CSP) is between (1,856 - 2,069) kWh/m²a.

These figures mean solar energy is optimum energy source for Dubai.



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DUBAI – Land of Opportunities & Achievements

دبي

- ❖ The UAE has established itself as a **key solar market** over the past couple of years and will continue to show leadership in 2016, in particular **Dubai and Abu Dhabi**.
- ❖ Dubai has emerged as a **global city and business hub of the Middle East and South Asia**. With its strategic geographic location, it has also become major transport hub for passengers and cargo, and a global hub for finance, business and tourism.
- ❖ Dubai has attracted world attention through many **innovative large construction projects and sports events**. The city has become symbolic for its skyscrapers and high-rise buildings, in particular the world's tallest building, the **Burj Khalifa**. Dubai has also won the bid for **World Expo 2020** which is expected to bring huge economic benefits by generating activities worth billions of dirhams.



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Why Business in Dubai?

The advantages of doing Business in Dubai and in UAE are:

- Leaders with Focus & Vision towards the future.
- Well established Infrastructures i.e. Advanced Communication, Transport Facilities etc.
- Duty-Free atmosphere. Dubai has various Free Zones like Dubai Airport Free Zone, Dubai Internet City, Dubai Media City, Dubai Multi Commodities Centre (DMCC), Dubai Silicon Oasis (DSO), Jebel Ali Free Zone, JLT Free Zone and Dubai World Central(DWC) Business Park to name few.
- Business friendly environment.
- Easy Visa Formalities.
- Totally Secure atmosphere.

Dubai is an ideal Entry Point for doing business in the Middle East Region.

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Dubai Plan 2021

Dubai Plan 2021

Dubai Plan 2021 describes the future of Dubai through holistic and complementary perspectives, starting with the people and the society who have always been, and always will be, the bedrock of the city. This aspect describes the characteristics that Dubai's people need to have to deliver on the city's aspirations in all areas, and examines the society needed to support and empower these individuals in achieving their goals.

The plan addresses the urban environment including both natural and built assets, and looks at the living experience of the people of Dubai and its visitors as a result of their interaction with this environment and the economic and social services provided. In addition, the plan also focuses on the economy, which is the city's development engine and its fuel for its march forward.

Finally, the plan addresses the government as the custodian of the city development in all aspects. These perspectives were divided into 6 themes, each highlights a group of strategic developmental goals for Dubai, and together forming the city's vision for 2021.

- The People: "City of Happy, Creative & Empowered People"
- The Society: "An Inclusive & Cohesive Society"
- The Experience: "The Preferred Place to Live, Work & Visit"
- The Place: "A Smart & Sustainable City"
- The Economy: "A Pivotal Hub in the Global Economy"
- The Government: "A Pioneering and Excellent Government"



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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: The infrastructure pillar includes initiatives such as Mohammed Bin Rashid Al Maktoum Solar Park, which is the largest generator of solar energy in the world from a single location with a capacity to produce 5,000 MW by 2030, and total investment of AED 50 billion.

Legislation: The second pillar focuses on the establishment of a legislative structure supporting clean energy policies in two phases.

Funding through the Dubai Green Fund: The third pillar is related to financing solutions for investment in research and development on clean energy and its application.

Building capacities and skills: The fourth pillar aims to build human resources capabilities through global training programmes in the field of clean energy in cooperation with international organisations and institutes such as International Renewable Energy Agency (IRENA) as well as international companies and R&D centres.

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.



By 2050



Environmentally Friendly Energy Mix By 2030

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Solar Projects in Dubai

Mohammed bin Rashid Al Maktoum Solar Park

The largest single-site strategic renewable energy project of its kind in the world, based on the IPP model.

- **Targeted Capacity by 2030: 5,000 MW**
 - First Phase: 13MW launched on 22 October 2013
 - Second Phase: 200MW will be launched in April 2017
 - Third Phase: 800MW will be launched in stages, ending by 2020
 - Fourth Phase: 200MW is currently under process for Tendering
 - Future Phases: Up to 5000MW by 2030 based mostly on IPP Model using **Photovoltaic (PV) & Concentrated Solar Power Technologies (CSP)**. As this project is a long-term plan, new future technologies can be implemented.
- This project will also have: **Research & Development Center with Solar Test Facility, Innovation Centre and University and Training Centre**
- The project covers an **area of 76 square kilometers**.



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Solar Projects in Dubai

Shams Dubai

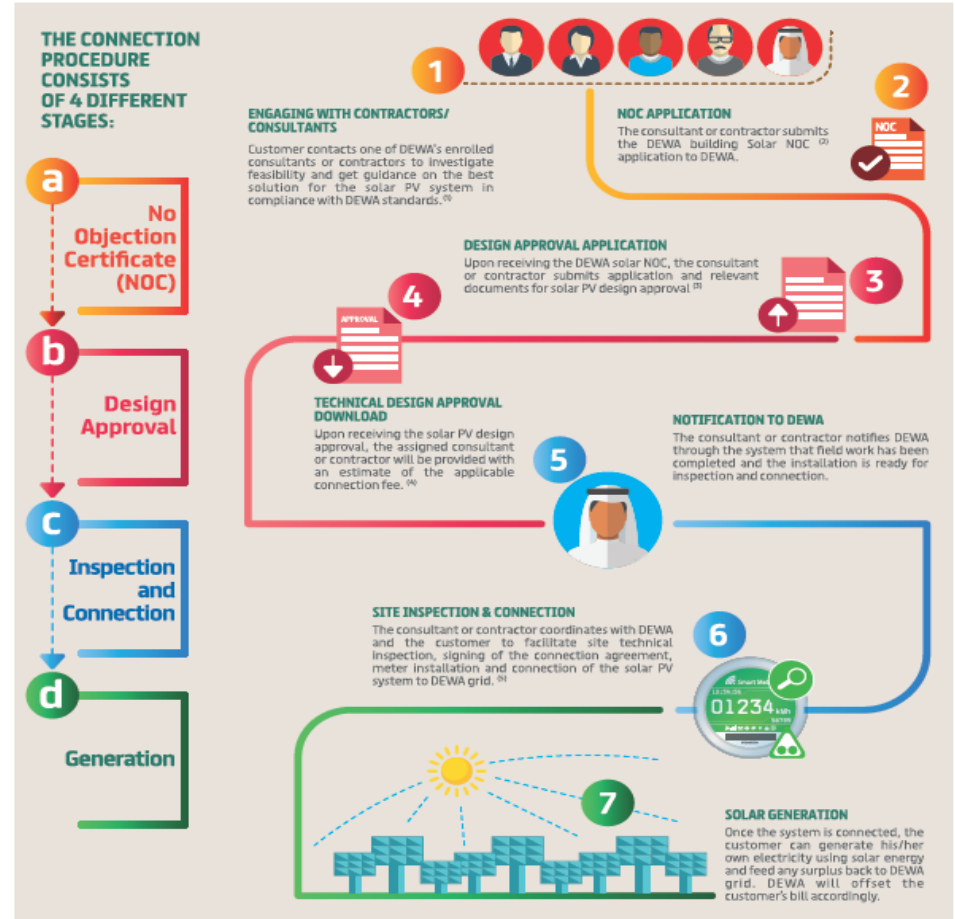
Connecting Solar Energy to Houses and Buildings

The Shams Dubai initiative 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.

DEWA 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.

DEWA is currently accepting registrations for the Eligible Equipment list or enrolled Consultants and Contractors whose personnel have attended DEWA's Solar PV Training Course and possess the necessary qualification and skill:

- PV modules
- PV Inverters
- Interface protection equipment
- Consultants and Contractors



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Solar Projects in Dubai

Shams Dubai - Connecting Solar Energy to Houses and Buildings

- ✓ A total of **222 buildings** were connected with photovoltaic installations in Dubai as part of Dubai Electricity and Water Authority (DEWA) Shams Dubai initiative as of October 2016. This includes residential and commercial buildings with a capacity of **over 6 megawatt (MW)**.
- ✓ DEWA has also enrolled **44 contracting and consultancy companies**.
- ✓ A total of **247 engineers have been certified** as enrolled electrical and solar photovoltaic consultants and contractors.
- ✓ **70 manufacturers of solar power equipment registered 578 products** are eligible for Shams Dubai.
- ✓ DEWA is also cooperating with **18 government organisations to install PV panels on 35 government buildings**.
- ✓ Construction of the **largest distributed solar rooftop project in the Middle East** is underway after DP World commissioned the installation of **88,000 rooftop solar panels** on its Dubai facilities in Jebel Ali Free Zone and Mina Rashid. Phase one will be completed in 2017.



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Solar Projects in Dubai

Innovation Centre *(under construction)*

Project Details:

It is sustainable architecture that aims to be a platform to showcase the latest technologies related to solar and sustainable technology, it will also enable DEWA to showcase Its own achievements.

- Building Area: approx. 4000 sqm.
- No. of floors: Ground + 4.
- Building Height: Approx. 90 Meters.
- Interior Theme: Futuristic Arabian Theme : “Arabia meets Star Wars”
- Selected Exhibition Interior Theme: “The Grid.”
- Selected Renewable Option: Solar PV with Solar Thermal Panels.
- Max Total Building Cost at Preliminary Stage: 88,900,000 AED.
- 52 exhibits to be present in the facility. (Approximate)



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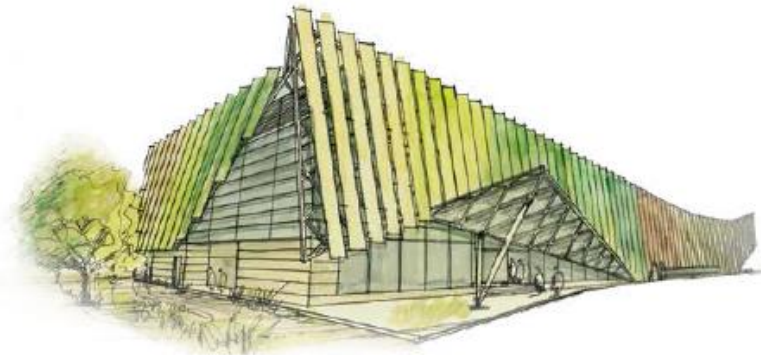
Solar Projects in Dubai

DEWA R&D CENTRE (*under construction*)

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

Objectives

- 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 & Development is focusing, among other topics, on the reliability and durability of photovoltaic solar panels for prolonged periods in severe conditions. 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. A key project has been launched for international collaborations 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.



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Solar Projects in Dubai

DEWA Solar Testing Facility

a part of the R&D Centre that includes:

Photovoltaic Solar Testing Facility

This facility concept is for innovative technology demonstrations in renewable energies. Current test program involves 32 module commercial types from more than 20 manufacturers. Operation and maintenance strategies are also in the core of the research topics. The data gathered from tests on these solar panels is also being used to improve their efficiency in the region, given its climate.

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.



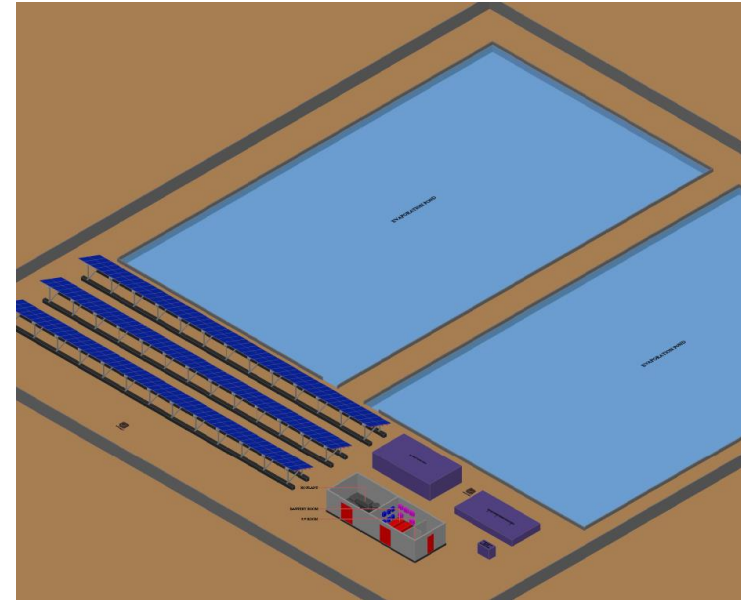
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Solar Projects in Dubai

PVRO

- Purpose: For research and development.
- Location: Mohammed Bin Rashid (MBR) Solar Park - Saih Al Dahal - Dubai.
- Plot: (100 M x 50 M)
- Pumping from up to 100 m depth.
- Inlet water salinity: 31370 PPM or mg/l
- Produced water salinity: ≤ 150 PPM or mg/l (Bottled water quality)
- Production: 50 m³ (13208 Gal) /Day (As a minimum production – in January).
- Rejected water: to evaporative pond (60m x 40m).
- Energy Sources: PV (7 h) + Batteries (7h) + DEWA Grid (10h)
- PV Capacity: Up to 100 kWp PV system (both to feed loads and charge batteries)
- PV generated energy/day: (500 – 750) kWh/day
- Energy requirements 283 kWh/day
- Excess energy will be fed to the grid
- PV generated energy /year: 160000 kWh/year
- Energy storage up to 420 kWh
- Equipped to form a Micro Grid with adjacent PVs.
- Underground fresh water tank (100 m³)
- Remote control and monitoring (from mobile devices and desktops) & full automation.
- Energy requirements 283 kWh/day



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Solar Projects in Dubai

DEWA's New Head Office

Alsheraa (Sail) Building is the new head office of DEWA located at the heart of the Cultural Village in Al Jadaf that aims to have the largest, tallest and smartest net Zero Energy Building (ZEB) in the world.

The total built up area of Alsheraa will be over 1.5 million square feet. The additional area comprises parking, MEP facilities, green-spaces, etc. The building will accommodate 5,000 employees in addition to customers and visitors. It will have over 10,000 sqm of Building Integrated Photovoltaic (BIPV), producing over 1,100 kW. Total renewable energy generated will be over 7,000 (MW) annually. The building will also be designed to have an Energy Utilization Intensity (EUI) of 70 kW/m² per year.

The Alsheraa Building is targeted to be a Zero Energy Building (ZEB), where the total energy used during a year is equal to or less than energy produced on site during that same year. The building will aim for a LEED Platinum rating (Leadership in Energy and Environment Design). It will aim to be at least 50% more efficient than typical buildings in water consumption. The ratio of green spaces will be almost 50%.

The Alsheraa Building will be inaugurated in 2019. This state-of-the-art building will promote Dubai and DEWA's sustainable lifestyle, in addition to making use if the latest techniques and innovative solutions.



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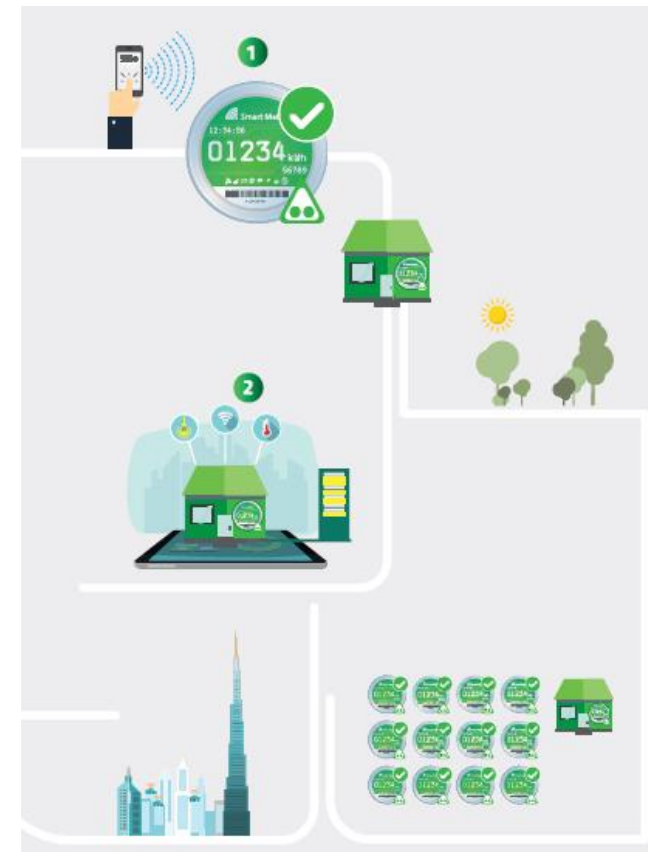
Other Initiatives and Programmes in Dubai

Smart Applications via Smart Grid and Smart Meters

By installing smart meters, DEWA will provide various benefits and new applications to its customers, including automatic and detailed readings (both current and historical).

The data obtained through these readings will be available to customers to monitor actual consumption for a specific period of time to better understand and manage bills. Additionally, such data will help identify energy efficiency and will enable comparisons to be made with average norms.

These smart meters will support renewable sources of energy in residential, commercial and industrial sectors by comparing energy supplies from consumption and generation sides.



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Other Initiatives and Programmes in Dubai

100 ELECTRIC VEHICLE CHARGING STATIONS ACROSS DUBAI, AND COUNTING. THE FUTURE LOOKS GREEN.

The Green Charger initiative supports the Smart Dubai initiative, launched by His Highness Sheikh Mohammed bin Rashid Al Maktoum, to make Dubai the smartest city in the world. The Green Charger initiative supports the strategy to reduce carbon emissions in Dubai by 16% by 2021.

Moreover, DEWA has added **13 electric cars to its fleet, becoming the first government organisation in Dubai to use electric cars.** This move supports Dubai's ambition to achieve a 10% increase in the total number of hybrid and electric cars in use by 2030.



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Other Initiatives and Programmes in Dubai

Solar Decathlon is an international competition to design smart solar-powered buildings. Universities from around the world take part in the programme that challenges teams to design, build, and operate energy-efficient houses. Following the agreement between the Dubai Supreme Council of Energy, DEWA and the US Department of Energy, Dubai will host the Solar Decathlon Middle East in October 2018 and in 2020.

22 international teams, that involve 37 universities from 16 different countries, have been selected to participate in the 2018 edition of the competition. The teams will be showcasing their SDME Projects Models at the Dubai Solar Show 2017.

PRIZES

The winner of the competition is the team that best blends innovation and design excellence with optimal energy production and maximum efficiency.

TOTAL OF AED 10,000,000 to teams selected to participate and that bring an eligible house to the SDME 2018 competition. **SPECIAL TECHNOLOGY INNOVATION AWARD OF AED 200,000** for the most innovative idea.



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About Dubai Electricity and Water Authority (DEWA)

- DEWA is the sole provider of Water and Electricity to the city of Dubai and ranked as one of the best utility organizations in the world providing services to more than 760,000 customers with satisfaction rate that reached more than 89% in 2016.
- DEWA is 100% owned by the **Dubai Government**.
- Dubai Electricity and Water Authority (DEWA) is an entity of **Dubai Supreme Council of Energy** which is the governing body tasked with policy development, planning and coordinating with concerned authorities & energy bodies to deliver new energy sources while employing a balanced approach to protecting the environment.
- DEWA's contribution to the economic development of Dubai has been an important factor in the Emirate's rapid rise in the world 's commercial and industrial scene.
- DEWA is managing and operating the Mohammed bin Rashid Al Maktoum Solar Park, which is the largest single-site solar project in the world.
- The Hassyan Clean Coal Power Plant is another pioneering project implemented by DEWA based on the IPP model. With a production capacity 2,400 MW, the first phase will be operational by 2023.
- In its quest to improve quality in the field of Power & Water DEWA constantly seeks Global partners for its procurement needs.

DEWA is a progressive and forward thinking utility with great business opportunity, potential and partnership.

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About Dubai Electricity and Water Authority (DEWA)

Investment Portfolio of DEWA:

- **Etihad Energy Services - 70%**
Established last 2013, it enables the energy performance contracting market in Dubai by developing energy efficiency projects targeting more than 30,000 buildings. www.etihadesco.ae
- **Empower - 70%**
Empower is created with the objective of providing world class District Cooling Services (DCS) to Dubai in general and Dubai Holding entities in particular. www.empower.ae
- **DUCAB-HV - 25%**
It is a cable manufacturing company for high, medium and low voltage cables. www.ducab.com
- **DCCE (Dubai Carbon Center of Excellence) – 25% – UMC 50%**
It is Public-Private Partnership of DEWA, DUBAL, ENOC & ISTIMADA that started operating in 2011 to offer advisory and carbon aggregation services to facilitate the transition to a low carbon economy. www.dcce.ae
- **MAI DUBAI - 99%**
Produces pure drinking water and was launch this year. www.maidubaiwater.com
- **RWE Power International ME - 51%**
It is a joint venture between DEWA and RWE Technology, a specialist energy consultation firm. The company was created to operate as the technical consulting division of RWE Group responsible for MENA region.



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DEWA organizes Dubai Solar Show

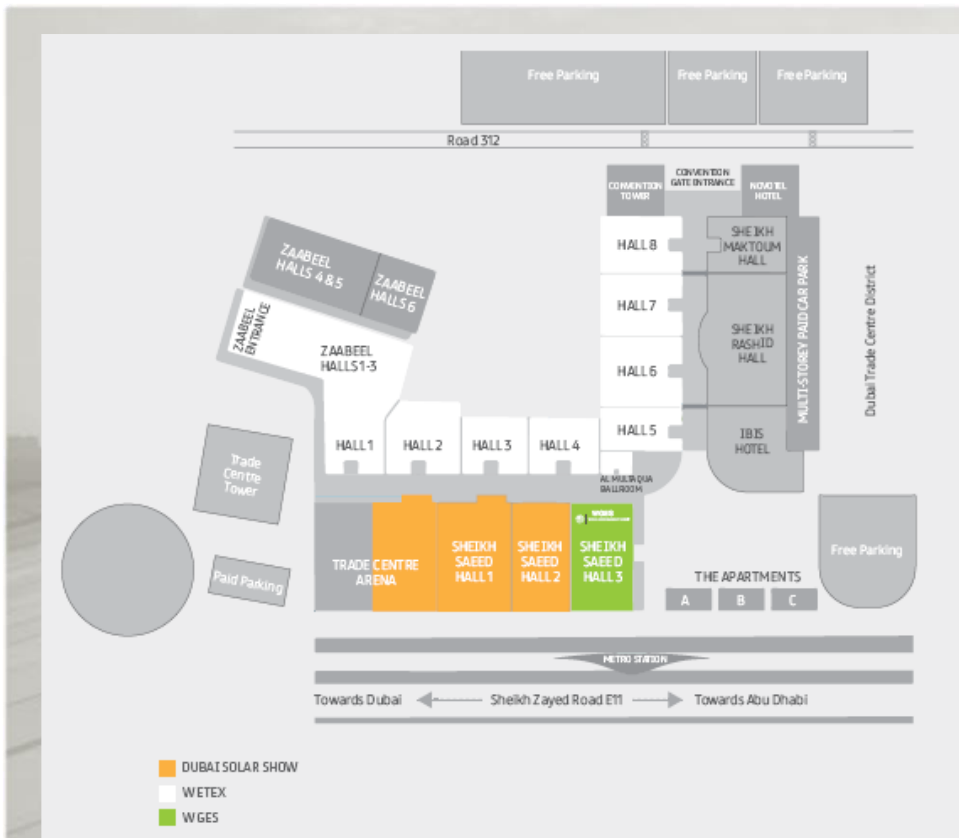


As part of WETEX Exhibition and Green Week, DEWA is inviting all professionals and organizations to Dubai Solar Show 2016, the region's largest sustainability & renewable technology exhibition, taking place on 23 – 25 October 2017 at the Dubai International Convention and Exhibition Centre. The exhibition aims to build and nurture partnerships between key industry leaders, governments, manufacturers, suppliers, traders, contractors and investors from across the globe.

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Why Dubai Solar Show?



- Total Gross Area: 70,000 sqm
- Over 40 exhibiting countries
- Over 1,900 exhibiting companies
- Over 25,000 visitors
- Over 5,000 WGES delegates
- Free-to-attend Summit, Seminars & Workshops with international speakers
- Free-to-attend Site Tours
- Pre-arranged B2B and B2G Meetings
- Over 500 million AED of business opportunities

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Participation Benefits in Dubai Solar Show

FREE-TO- ATTEND CONFERENCE, SEMINARS & WORKSHOPS

Stay updated with latest technologies and gain expert insights from market leaders.

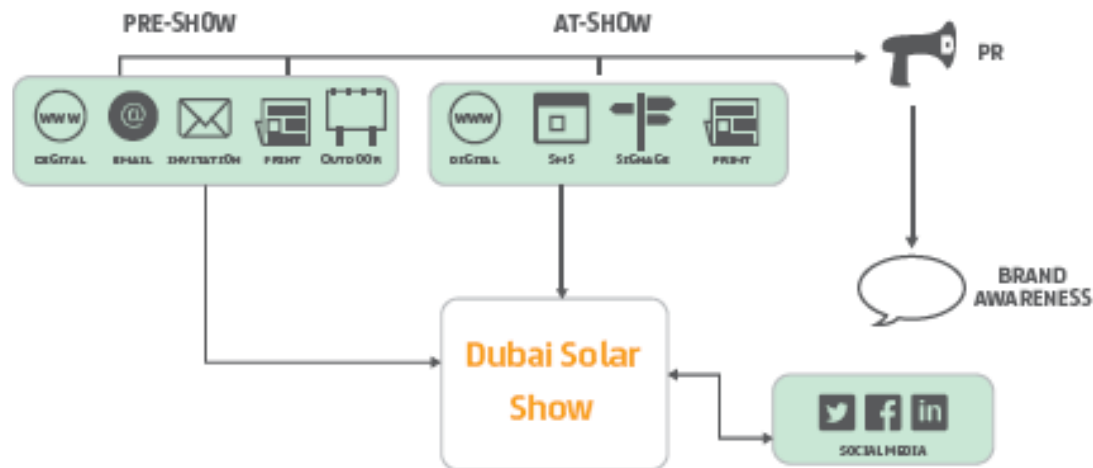
PRE ARRANGED B2B MEETINGS & PRODUCT PRESENTATIONS

Showcase your product to a wider audience and demonstrate your unique product features.

EXCLUSIVE SITE TOURS

Join our exclusive site tours and visit state-of-the-art power plants and facilities around UAE.

EXTENSIVE BRAND PROMOTION



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Participants Profile

Exhibitor Profile

- Manufacturers
- Suppliers and Distributors
- Solar System Installers
- Solar Energy Storage
- IPP & Solar Project Developers
- Research & Development
- Solar Innovation Solutions
- Engineering and Consultancy
- System Integrators
- Solar Desalination
- Solar Thermal
- Utilities & Municipalities
- Universities & Educational Institutions
- Solar Associations
- Solar Magazines
- Solar Parks
- Solar & Electric Cars
- Solar Consumer Products

Visitor Profile

- Municipalities & Utilities
- Real Estate Developers & Community Developers
- Facilities Management
- Agents & Distributors
- Contractors & Project Developers
- Engineering and Consultancy
- Research and Development
- Project Owners
- Banks & Investors
- Universities

By Job Function:

- CEO and other C-level Executives , Chairman, President, General Managers
- Vice President, Directors
- Project Managers & Engineers
- Purchasing and Supply Managers
- Business Development & Export Managers
- Sales Managers & Directors
- Consultants, Advisors, Experts, R&D Professionals
- Marketing & Communications Managers, Media & Journalists

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Co-located Events



WATER, ENERGY, TECHNOLOGY, AND ENVIRONMENT EXHIBITION (WETEX)

Over the years, the exhibition has seen a significant success with 3 major events taking place on one platform witnessing thousands of visitors, exhibitors, officials from the world in addition to large number of academies and associations, demonstrating the latest technologies on Water, Energy, Green Cities, Environment, Technologies and Innovations under the Green Week.



WORLD GREEN ECONOMY SUMMIT

THE WORLD GREEN ECONOMY SUMMIT (WGES)

Hosted by DEWA, The World Green Economy Summit (WGES) is the world's leading platform to discuss, foster, plan and implement the shift to the green economy for government, business, finance and civil society. The 3rd WGES took place on 5 and 6 October 2016 at the World Trade Centre, catering to an audience of nearly 2,500 people. It was launched under the patronage of HH Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai.



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Participation Options at Dubai Solar Show

SPONSORSHIP OPTIONS

- ❖ **TITANIUM SPONSOR** (AED 1,000,000 / USD 272,480)
- ❖ **STRATEGIC SPONSOR** (AED 500,000 / USD 136,240)
- ❖ **PLATINUM SPONSOR** (AED 400,000 / USD 108,990)
- ❖ **GOLD SPONSOR** (AED 200,000 / USD 54,500)

EXHIBITION STAND OPTIONS

Option 1: Standard Shell Scheme - US\$ 480/m²

Package includes (per 9sqm): built up shell scheme stand with white fascia with Exhibitors' names in English, 3 Nos. spotlights on a track, 13 Amp S/P Power Socket, Standard Reception desk, 2Nos. Standard Folding Chairs, Carpet flooring tiles, Stand Personnel Badges, General Illumination, General Security Services Complimentary Official show catalogue entry and Complimentary invitations to official receptions.

Option 2: Space Only - US\$ 450/m²

Package includes: Bare Space, Stand Personnel Badges, General Illumination, General Security Services, Complimentary Official show catalogue entry and Complimentary invitations to official receptions.

For more details on sponsorship or exhibiting, please contact marketing@dubaisolarshow.com

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Outcomes for 2016



VIP Attendees



Parallel Seminars & Workshops



Sponsors Awarded at Gala dinner



Latest Innovations



High Level Speakers at WGES



MoU signing Ceremony



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Thank you

Together, lets join hands for a better and
sustainable future!