

GREEN BUILDING CITY MARKET BRIEF

DUBAI

UNITED ARAB EMIRATES



DRIVING STRATEGIES

In 2014, the Dubai Government released **Dubai Plan 2021** which aligns with the **UAE Vision 2021** and the **Green Economy for Sustainable Development Initiative** and aims to position Dubai at the forefront with a primary focus on the happiness of residents, society, and economy, as well as smart and sustainable cities. Dubai Government also announced in 2016 the **Dubai Clean Energy Strategy (DCES) 2050** to increase the clean energy share and diversify the energy mix of the Emirate.

Along with Dubai's plan to be the most sustainable city in the world by 2020, the aforementioned strategies serve as tools to drive the progress of green buildings and sustainability in the Emirate.

2019 saw Dubai becoming the first city in the Arab world and the Middle East and North Africa (MENA) region to receive the prestigious **Platinum Rating in the LEED for Cities certification**.

GREEN BUILDINGS

Regulations on New Construction

Dubai Municipality applied the **Green Building Regulations and Specifications (GBR&S)** to government owned buildings in January 2011 and mandated it for all new buildings in Dubai starting March 2014.

Based on the GBR&S, Dubai Municipality (DM) introduced the **Al Sa'fat Rating System** in September 2016 with four certification levels to strengthen the sustainable built environment of the city.

Existing Buildings' Retrofit

Etihad ESCO was established in 2013 to create a viable performance contracting market for energy service companies (ESCOs) in Dubai. Along with other ESCOs, they aim to retrofit about 30,000 buildings by 2030 and generate 1.68 TWh energy savings and 5.64 BIG water savings by 2030.

As of 2017, Etihad ESCO and other RSB accredited ESCOs have completed retrofitting 2,465 buildings.

To support the growth of the retrofit market, Emirates Green Building Council (EmiratesGBC) commenced its **Building Retrofit Training (BRT)** Program in August 2017, based on the EmiratesGBC Technical Guidelines for Retrofitting Existing Buildings. In October 2018, the Advanced Level BRT Program was launched, aimed at industry professionals to provide them with information on retrofit methods to support ongoing retrofit projects and to streamline their technical capacity for more effective post-retrofit maintenance and preventive care.

As of February 2019, 67 individuals have completed the Introductory course and 24 individuals have completed the Advanced course.

SUSTAINABLE DEVELOPMENT

Energy Benchmarking

In January 2019, EmiratesGBC, in partnership with Dubai Supreme Council of Energy (DSCE), published a benchmarking report on

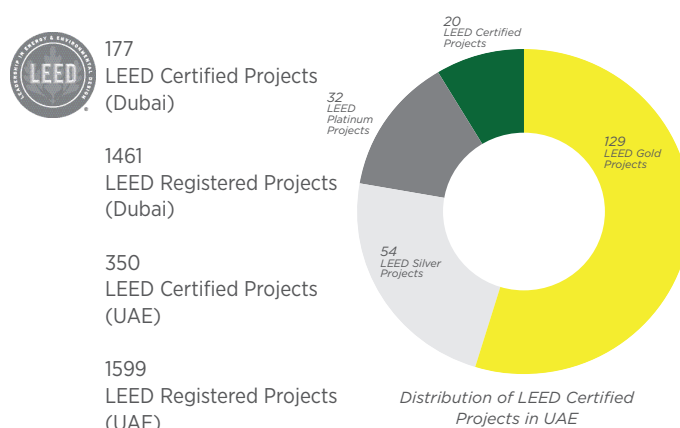
CITY DETAILS

Population	3.217 Million
Land Area (km ²)	4114
Climate Action Plan	Yes

MEMBERSHIP AND PROFESSIONALS

EmiratesGBC Members – Individuals	31
EmiratesGBC Members – Companies	130
LEED Credentialed Professionals (UAE)	1935

PROJECT BREAKDOWN



CITY TARGETS SET BY THE DUBAI GOVERNMENT

- 30% Energy and Water savings by 2030
- 75% Clean energy contribution in fuel mix by 2050

the energy and water performance of Dubai hotels, schools, and shopping malls. The report forms part of Dubai's commitment under the Building Efficiency Accelerator (BEA) program of undertaking a demonstrable project to accelerate the uptake of energy efficiency in the Emirate by assessing and benchmarking the performance of hotel, school and shopping mall buildings. The median values of the 3 building typologies are listed in the table below.

Building Typology	Median Value
Hotels and Hotel Apartments	249 kWh/m ² /year
Resorts	334 kWh/m ² /year
Shopping Malls	462 kWh/m ² /year
Schools	134 kWh/m ² /year

Under Dubai's commitment to the BEA, RSB Dubai is also developing an energy labelling scheme for hotels, offices and residential buildings.

Energy and Water Efficiency

One of the main objectives of the Dubai Integrated Energy Strategy

(DIES) 2030, issued by Dubai Supreme Council of Energy in 2011, is to reduce the Emirate's energy and water consumption by 30% by 2030. Additionally, it promotes diversification of fuel sources to include clean coal, solar and nuclear energy.

Also part of DIES 2030, DSCE developed a Demand Side Management Strategy (DSM) to support Dubai's energy and efficiency plan, with TAQATI serving as the dedicated program management office. In 2018, DSCE officially unveiled the 'My Energy, My Responsibility' campaign to encourage responsible behavior to reduce the energy and water use by Dubai residents.

Net Zero Center of Excellence

EmiratesGBC's commitment to advancing net zero buildings in the UAE was done through a first-of-its-kind report Defining Nearly Zero Energy Buildings in the UAE - 2017, which provides a definition for nearly zero energy buildings in the UAE and highlights the challenges and opportunities for the development of net zero buildings in the UAE.

In 2018, EmiratesGBC formally established the Net Zero Centre of Excellence, a think tank and accelerator which provides a platform for public sector, academia, civil society and the private sector to learn and share knowledge on net zero buildings.

To support the uptake of Net Zero Buildings in the UAE, EmiratesGBC signed a partnership agreement with the International Living Future Institute to offer Zero Energy and Zero Carbon buildings certifications in the UAE

Majid Al Futtaim - a pioneering developer in the Middle East and North Africa (MENA) region - became one of the first globally and the first in the region to sign up to the World Green Building Council's Net Zero Carbon Buildings commitment, aiming to eliminate operational carbon emissions from all buildings in its portfolio by 2030.

Sustainable Transportation

In 2018, DSCE launched a government-backed campaign, E-Sayyara, under the Dubai Green Mobility Strategy 2030 to increase the number of electric vehicles driven by the private sector and residents in Dubai. Dubai Electricity and Water Authority (DEWA), the Roads and Transport Authority (RTA) are providing incentives from 1 September 2017 to 31 December 2019 to encourage the public use of electric vehicles; including free public vehicle charging, free assigned parking and renewal fees, among others.

In October 2018, DEWA announced that it had completed the second phase of the EV Green Charger Initiative, increasing their number from 100 to 200, helping to achieve Dubai's carbon abatement strategic target of a 16% carbon reduction by 2021.

The RTA is in the process of converting 50% of Dubai taxicabs to hybrid vehicles by 2021. They are also developing 900 kilometers of cycle paths per Dubai Bicycle Master Plan. Additionally, the Dubai Metro's Red Line is currently being extended to the Dubai Expo 2020.

Waste Management

In 2018, Dubai signed the C40's Advancing Towards Zero Waste Declaration to cut the amount of waste generated by each citizen 15% by 2030, reduce the amount of waste sent to landfills and incineration by 50% and increase the diversion rate to 70% by 2030.

Since 2002, the Clean-Up UAE campaigns, launched by Emirates Environmental Group (EEG), has brought together individuals, families and organizations from both public and private sectors to participate in cleaning, waste segregating and recycling campaigns.

In 2018, Clean Up UAE collected a net 32.5 tonnes of waste from 5 emirates.

Dubai Clean Energy Strategy (DCES) 2050, launched in 2016, aims to provide 75% of the Emirate's energy through clean energy sources and strives to make Dubai a global center of green economy with the smallest carbon footprint in the world by 2050. One of the main pillars of DCES is Mohammed Bin Rashid Al Maktoum Solar Park, one the region's most ambitious renewable energy projects. It will have an installed capacity of 5,000MW by 2030. The different phases of the projects and their capacities are summarized in the table below.

Mohammed bin Rashid Al Maktoum Solar Park				
Stage	1st Phase	2nd Phase	3rd Phase	4th Phase
Capacity	13MW PV	200MW PV	800MW PV	950MW CSP and PV
Operating by	2013	2017	2020	TBD

To encourage installing micro-solar systems, DEWA also launched its Shams Project to promote installing photovoltaic solar panels on residential and commercial buildings and generate electricity on-site.

As of 2017, the cumulative connected solar rooftop capacity is 22.6 MWp under Shams Dubai.

The UAE Energy Strategy 2050, a federal initiative announced in January 2017, also aims to increase the contribution of clean energy to 44% in the total UAE's energy mix by 2050.

PROJECT SPOTLIGHT

DEWA Al Sheraa Building

DEWA's new building, named Al-Sheraa (Arabic for sail), will be the tallest, largest, and smartest net Zero Energy Building (ZEB) in the world. The building will have over 22,000 square meters of photovoltaic solar panels to produce over 4,400 kilowatt-peak (kWp). There will be about 1,000 square meters of Building Integrated Photovoltaic (BIPV). Total annual renewable energy generated by the building will be over 6,200 megawatt hours (MWh). The building will have an Energy Utilization Intensity (EUI) of 58 kW/m²/year. The building will use the latest technologies including Internet of Things (IoT), Big Data and Open Data, and Artificial Intelligence (AI). Robots will be used for cleaning of solar roof PV. Additionally, the building is targeted to use 50% less water than regular buildings. It is set to be completed in the last quarter of 2019.



Image Courtesy of Dubai Electricity and Water Authority

REFERENCES

1. Dubai Statistic Center Website: <https://www.dsc.gov.ae/en-us/EServices/Pages/Population-Clock.aspx>
2. Emirates Green Building Council Membership Figures were retrieved on 01 February 2019.
3. LEED Professionals and Project Figures were retrieved on 01 February 2019.