

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.

GREEN BUILDINGS

Regulations on New Construction

Dubai Municipality imposed the **Green Building Regulations and Specifications (GBR&S)** on government owned buildings in January 2011 and mandated it for all new buildings in Dubai starting March 2014. The objective of these regulations was to enhance the performance of newly constructed buildings, improve public and environmental health, and improve the safety and general welfare of citizens.

Based on the GBR&S, Dubai Municipality introduced **Al Sa'fat Rating System** in September 2016, with four certification levels to strengthen the sustainable built environment in the city and support the goals of Dubai Plan 2021 for a smart and sustainable city.

Existing Buildings' Retrofit

Ethihad ESCO, a Dubai Electricity and Water Authority (DEWA) venture, manages a retrofitting program for existing governmental buildings with the goal to create a viable performance contracting market for energy service companies in Dubai. Ethihad ESCO aims to generate 1.7 TWh energy savings, 5.6 BIG water savings, and 1 M tons CO2 emissions' reduction by 2030.

As of 2016, Ethihad ESCO has completed retrofitting of 2,178 buildings.

To support the growth of the retrofit market, Emirates Green Building Council (EmiratesGBC) announced its **Building Retrofit Training (BRT) Program** in January 2017. The program is based on the content of the EmiratesGBC's Technical Guidelines for Retrofitting Existing Buildings and aims to build capacity and raise awareness about the financially viable retrofit methods to improve existing buildings performance.

SUSTAINABLE DEVELOPMENT

Energy Benchmarking

In September 2016, EmiratesGBC published a first-of-its-kind report on energy and water performance for UAE hotels to advocate for carbon footprint reduction and improved water and energy performance of hotels.

Dubai Supreme Council of Energy (DSCE) has also put a concerted focus on benchmarking and launched an Energy Intensity Mapping

CITY DETAILS

Population	2.755 Million
Land Area (km ²)	4114
Climate Action Plan	Yes

MEMBERSHIP AND PROFESSIONALS

EmiratesGBC Members – Individuals	41
EmiratesGBC Members – Companies	158
LEED Credentialed Professionals (UAE)	1721

PROJECT BREAKDOWN



CITY TARGETS SET BY THE DUBAI GOVERNMENT

- 30% Energy savings by 2030
- 30% Water savings by 2030
- 25% Solar energy contribution in fuel mix by 2030
- 75% Clean energy contribution in fuel mix by 2050

Tool in December 2015 to support the local government to better understand the energy use of Dubai's existing buildings and thereby develop strategies to improve the efficiency of the built environment

Based on the gained experience from the aforementioned benchmarking projects, EmiratesGBC and DSCE aim to benchmark the energy performance of 100 Dubai buildings in three focus groups (hotels, schools, and shopping malls). This project was announced in February 2017 as part of Dubai's commitment to the **Building Efficiency Accelerator (BEA)** which is an initiative under the UN program "Sustainable Energy for All".

On the federal level, the Ministry of Energy (MoE) launched an energy database called Atmatah in 2016 to track the consumption trends of government 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 decrease energy and water consumption by 30% by 2030. Additionally, it promotes diversification of fuel sources to include clean coal, solar and nuclear energy.

As part of DIES 2030, DSCE has also developed a Demand Side Management Strategy (DSM) to support Dubai's energy and efficiency plan. For that, DSCE established TAQATI in January 2016, as the dedicated program management office for the Dubai DSM Strategy.

The Emirates Authority for Standardization & Metrology (ESMA) is the federal body enforcing mandatory energy efficiency requirements and labeling systems on water fixtures, lighting, electrical appliances and air conditioners.

Sustainable Transportation

In September 2015, DSCE launched Dubai's Green Transport Initiative to encourage the use of sustainable transportation, such as hybrid and electric vehicles.

The Green Transport Initiative is expected to contribute to a 19% decrease in the total carbon emissions in Dubai with a target of achieving a 10% increase in the number of hybrid and electric cars by 2030.

The Dubai Road & Transport Authority (RTA) also acts on promoting efficient sustainable transportation. Dubai Metro, Dubai Tram, bio-fuel operating buses, and electric boats are success stories for the Emirate. The RTA aims to convert 50% of Dubai taxicabs to hybrid vehicles by 2021 and deliver 900 kilometers of cycle paths by 2020 as per Dubai Bicycle Master Plan.

Aiming to make 25% of all Dubai trips driverless, RTA also tested a fleet of driverless vehicles in 2016 as part of Dubai Autonomous Transportation Strategy 2030.

Waste Management

In 2012, the waste management department of Dubai Municipality launched a door-to-door waste collection and recycling program under the title of "My City, My Environment". Recycling bins have been made available in different areas of the city to encourage the public to recycle to help in the development of a more environmental friendly city.

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 2016, 125,536 people participated in the Clean Up UAE campaign and collected 110,000 kg of wastes across the country.

Renewable Energy

Dubai Clean Energy Strategy (DCES) 2050, launched in 2016, aims to provide 75% of the Emirate's energy through clean energy sources by 2050 and strives to make Dubai a global center of green economy with the smallest carbon footprint in the world by 2050.

The UAE Clean Energy Strategy, a federal initiative announced in January 2017, also aims to increase the contribution of clean energy to reach 50% in the total UAE's energy mix by 2050.

Aligning with Dubai's clean energy targets, Dubai Electricity and Water Authority (DEWA) has launched the world's largest concentrated solar power (CSP) project in 2016 which will generate 1000MW of power when completed.

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.

LEED SPOTLIGHT

Dubai is set to be the host of Expo 2020. One of the themes of the Expo is Sustainability. To ensure the event lives up to the theme, organizers are pursuing certification under LEED v4, the newest iteration of the globally recognized symbol of excellence in green building for a number of the pavilions.

PROJECT SPOTLIGHT

Mohammad Bin Rashid Space Centre, Sustainable Autonomous House

The Sustainable Autonomous House (SAH), constructed by the engineers at Mohammad Bin Rashid Space Centre in 2016, was certified as the first passive house in the MENA region by The Passive House Institute in Germany. To ensure thermal comfort and temperature range between 20 and 25 degrees Celsius, SAH's envelop was deliberately designed with engineered wood structure, wool insulation and triple glazing windows to ensure minimal thermal loss. The SAH is also fully powered solely with a solar photovoltaic system to supply its energy requirements. Thermal and light sensors have been installed and controlled by a smart automation system to ensure efficient energy use of the smart technologies found.



Photographs courtesy of the Mohammad Bin Rashid Space Centre

REFERENCES

1. Emirates Green Building Council Membership Figures. Retrieved on 31 March 2017
2. LEED Professionals and Project Figures. Retrieved on 28 April 2017