



By 2030, more than 60 per cent of the world's population – 5 billion people – will live in cities. In order to cope with population growth while conserving natural resources, cities must adapt to support sustainable living.

In 2008, Masdar City embarked on a daring journey to develop the world's most sustainable low-carbon city. From its inception, city planners knew that turning such a visionary concept into reality would be a major challenge. Today, Masdar City is successfully pioneering a "greenprint" for how cities can accommodate rapid urbanisation while dramatically reducing their energy and water needs and waste production.

Masdar City is an ecosystem integrating knowledge, research and development, a technology cluster and a business and investment free zone. Our focus on innovation and sustainability is attractive to businesses, educational institutions and residents – and today Masdar City is a cultural destination in its own right receiving on average 2,300 visitors each week.

By pushing the boundaries of sustainable design and innovative technology, Masdar City now offers a complete innovation ecosystem housing pioneering R&D and pilot facilities that nurture and implement ground-breaking solar energy, energy storage, green building and urban sustainability projects.

To enable the City to reach its full potential, Masdar has established sustainability benchmarks to ensure the delivery of measurable environmental social and economic benefits. Masdar City's template for a sustainable city also showcases the effective deployment of passive design that is tailored for arid, desert regions.

Masdar City will see rapid expansion over the next decade. The next phase of the city's evolution will see the development of Abu Dhabi's first R&D cluster hosting a range of pilot projects aimed at commercialising clean technologies, and served by a community including homes, schools, mosques, parks, restaurants, cafés and services outlets – all within walking distance of each other in a pleasant and sustainable urban environment.

Masdar City at a Glance

Building efficiency

- + Home to one of the Middle East's largest clusters of high performance buildings, which act as a real-time laboratory to monitor and study how cities use, conserve and share resources
- + Combining passive and intelligent design, the buildings' energy and water demands are 40 per cent lower than average (ASHRAE/ Estidama Pearl Building Rating System)
- + Buildings must meet a minimum Estidama Pearl Building Rating System certification of three pearls (comparable to LEED Gold)
- + Buildings are constructed with low-carbon cement and 90 per cent recycled aluminium, in addition to other locally-sourced and verified materials

A vibrant community

Home to more than 450 global and local companies and featuring a growing selection of restaurants and cafés, Masdar City is an attractive community in which people can live, work, learn and play.

Signature tenants include:

- + Etihad Airways
- + General Electric
- + International Renewable Energy Agency (IRENA) Headquarters
- + Lockheed Martin
- + Mitsubishi Heavy Industries
- + Schneider Electric
- + Siemens

Mobility for the twenty-first century

- + Masdar City is walkable and pedestrian friendly
- + Integrates a smart network of transportation options to create an accessible, livable community
- + Designed to encourage and promote low-carbon public transportation
- + Transportation options include Personal Rapid Transit (PRT) and in the future, Metro Line and Light Rail Transit (LRT) to Abu Dhabi

By integrating traditional Arabic architectural techniques with modern building technologies, Masdar City is designed to capture prevailing winds and offer naturally cooler outdoor public spaces than those found elsewhere in Abu Dhabi, while the buildings consume 40% less energy and water. Masdar City is in part powered by clean energy generated from a 10 MW solar power plant on site and 1MW solar rooftop system. Harnessing the sun's rays, the plant produces 17,500MWh of clean electricity annually and diverts 7,350 tonnes of carbon emissions per year.

The total site area is about 6,000,000m², while the gross floor area of Masdar City alone comprises of 4,000,000m². Situated in a strategic location, Masdar City is only 5 minutes from Abu Dhabi International Airport, 20 minutes from downtown Abu Dhabi, and 40 minutes from Dubai.

At the City's core is the Masdar Institute of Science and Technology, an institution integral to the growth of the UAE's knowledge based economy. The Institute, which is dedicated to discovering cutting-edge solutions in the fields of energy and sustainability, offers partnerships to companies to further inspire a culture of innovation and entrepreneurship, drive economic growth, and accelerate the commercialisation of breakthrough technologies for global markets.

Today, with people already living and working at Masdar City, the development has emerged as a full-fledged innovation ecosystem. Masdar City continues to add new businesses, schools, restaurants, apartments and much more – creating the diverse mixed-use community characteristic of major, modern cities around the world.

Around 35% of Masdar City's planned development will be completed within the next five years, and nearly 30% has already been committed to, including private homes, schools, hotels and more office space. Several unique new developments, including the Leonardo Residences, the 'Neighbourhood 1' community and the Tristar office building, are due to come on-stream in the near future. These projects and others will add hundreds of new residential and office units to meet the growing market demand for space in the City.

As part of its expansion plan, Masdar City aims to grow its commercial tenant base nearly four-fold by 2020. More than 450 companies from six continents operate from Masdar City, from start-ups to multinationals.

When complete, up to 50,000 people will live in Masdar City, with up to 40,000 working and studying there every day.

Examples of research and development projects being done at Masdar City include:

- Masdar Solar Hub: Photovoltaic Test Centre, CPV Testing Facility and Masdar Institute Solar Platform
- Seawater Energy and Agriculture System (SEAS) / Food and Biofuel
- Electric Energy Storage Solutions Hub
- Masdar City Eco-Villa Prototype
- Smart Home Energy Management System (SHEMS)
- Personal Rapid Transit (PRT) System
- Masdar City Construction Waste Management
- Masdar Institute for Science and Technology Field Station
- Feasibility of District Cooling powered by Geothermal Energy for Masdar City

Key buildings

Buildings within Masdar City are designed to reduce energy and water consumption by at least 40% in accordance with LEED and the Estidama Pearl Building Rating System baselines (audited as per Masdar's GRI-based sustainability report), achieving a minimum '3 Pearl' rating under the Estidama guidelines.

Siemens Middle East HQ

The award-winning building has been designed with sustainable materials and energy efficient technologies, making it the first, and currently the only, 3 Pearl Estidama and LEED Platinum certified office building in Abu Dhabi. The Siemens Middle East HQ consumes 64% less energy than typical office buildings in Abu Dhabi.



IRENA HQ

This complex, a three-block building completed during 2014, is the permanent headquarters for the International Renewable Energy Agency (IRENA). The 32,064 m² complex is the UAE's first 4 Pearl structure under the Estidama Pearl Building Rating System. The passive design and smart energy-management systems enable the complex to consume 42% less energy than global energy-efficiency standards which is equivalent to 64% less than typical office buildings in Abu Dhabi.



Incubator Building

Masdar City's first commercial property, the Incubator Building, integrates retail and office space. The building houses a range of businesses from start-ups and SMEs to regional offices of large multinational corporations. The building uses innovative design, high performance façades and smart shading strategies, thereby helping to reduce the operating costs of businesses.



Masdar Institute Campus

The Masdar Institute of Science and Technology (MI) campus is the city's nucleus. After an expansion in 2013, the campus now has residential units that house 287 students, more than 100 faculty and researchers, four research centres of excellence. The MI campus demonstrates that sustainable living in an academic environment is conducive to cutting-edge research. The building facades are highly insulated and also designed to minimise direct solar penetration – a combination that passively helps to minimise energy consumption.



The Knowledge Centre

This signature building is the gateway to the Masdar Institute campus. The centre is a model of sustainable design. The building's distinctive roof, while providing shade, also minimises the structure's cooling load and controls natural daylight. In addition, the centre's orientation optimises the efficiency of its rooftop photovoltaic array and thermal tubes. The 900m² space hosts Masdar Institute's library, which is used by students and researchers.



Laboratories

Masdar Institute's laboratories feature state-of-the-art equipment that supports research in strategic areas such as semiconductors, nanotechnology, clean mobility, and aerospace engineering, which is increasingly important to Abu Dhabi's growing knowledge economy. The laboratories also include a cleanroom, an electron microscopy centre, a digital systems lab, and several high-performance computers.

