Abu Dhabi'S MASDAR INITIATIVE breaks ground on carbon-neutral city of the future

Total project development budget is $22 billion for the world's first zero-carbon, zero-waste city

Abu Dhabi broke ground on Masdar City, the world's first zero-carbon, zero-waste, car-free city just a few weeks ago. The global milestone event was marked by the laying of a virtual cornerstone by His Highness General Sheikh Mohammed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the UAE Armed Forces, and a visually stunning production depicting life in the city.

In conjunction with the groundbreaking, Masdar CEO Dr. Sultan Al Jaber announced a total development budget for the city of $22 billion. Of that investment total, Masdar ("the source" in Arabic) will contribute $4 billion to develop the city's infrastructure. The remaining $18 billion will come through direct investments and the creation of various financial instruments to raise needed capital. An essential driver for the development of the city is carbon finance. Carbon emissions reduced by Masdar City will be monetized under the Kyoto Protocol's Clean Development Mechanism.

In addition to full-time residents, Masdar City will seek to attract and encourage collaboration between experts in sustainable transportation; waste management; water and wastewater conservation; green construction, buildings and industrial materials; recycling; biodiversity; climate change, renewable energy and green financial institutions. Masdar will maximize the benefits of sustainable technologies, such as photovoltaic cells and concentrated solar power, through an integrated planning and design approach.

By implementing these technologies, Masdar City will save the equivalent of more than US $2 billion in oil over the next 25 years, based on today's energy prices. The city will also create more than 70,000 jobs and will add more than two percent to Abu Dhabi's annual GDP.

"We are creating a city where residents and commuters will live the highest quality of life with the lowest environmental footprint," said Dr. Al Jaber. "Masdar City will become the world's hub for future energy. By taking sustainable development and living to a new level, it will lead the world in understanding how all future cities should be built."

In addition, the city will achieve unprecedented levels of demand reduction. Highlights include:

Seventy-five percent reduction in installed power capacity; Masdar City will require approximately 200 MW of installed clean power versus more than 800 MW of installed capacity to power a similar city based on conventional design

Water needs cut by more than half; Masdar City will require around 8,000 m3 per day of desalinated water versus more than 20,000 m3 per day for traditional cities

Landfill area severely diminished; a city of this size would have required millions of square meters of landfill area; Masdar City will need virtually no landfill area.

The first step in the city's seven-phase plan is the development of the Masdar Institute of Science and Technology (MIST), the world's first graduate university dedicated to renewable energy. Developed in collaboration with MIT and scheduled to open in 2009, MIST will maintain a body of students and professors focused on developing the next generation of solutions to the world's growing dependence on fossil fuels.

The six-square kilometre district is designed by renowned architecture firm Foster + Partners and set to be completed in 2016 in conjunction with Abu Dhabi's 2030 Development Plan. It will eventually grow to 1,500 businesses and 50,000 residents and will be home to international business and top minds in the field of sustainable and alternative energy. Of this, 30 percent will be zoned for housing; 24 percent for the business and research district; 13 percent for commercial purposes, including light manufacturing; 6 percent for the MIST; 19 percent for service and transportation; and 8 percent for civic and cultural pursuits.

Masdar City is one of the flagship projects of the One Planet Living™ programme – a global initiative launched by WWF (also known as the World Wide Fund for Nature and the World Wildlife Fund). One Planet Living™ aims to prove that it is possible to live within ecological limits and still improve the quality of people's lives. One Planet Living™ communities, such as Masdar, aim to put the principles of sustainability into practice, and Masdar City exceeds these principles.

Masdar (South West of Dubai) as the city is now.

Masdar City will be the home of the Masdar Initiative, Abu Dhabi's multi-faceted, multi-billion dollar investment in the development and commercialization of innovative technologies in renewable, alternative and sustainable energies as well as sustainable design. In January 2008, Abu Dhabi announced it will invest $15 billion in Masdar, the largest single government investment of its kind.

The groundbreaking ceremony's electricity needs and carbon emissions were entirely offset by solar power reserves produced by Masdar's photovoltaic testing facilities. Since it began producing power for the national grid in December 2007, the facility has generated more than 5,500 kilowatt hours of electricity and saved more than four tons of CO2.

Masdar City – The World's Hub of Future Energy
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The Masdar Institute of Science of Technology
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Design
Masdar City is designed by renowned architecture firm Foster + Partners and is set to be completed in 2015. It will draw inspiration from traditional Arabic cities, where the person, not the vehicle, is paramount. The city will reduce the carbon footprint by developing in a compact area that allows for easy pedestrian movement and expands the comfort zone of the city through control of sun and wind to create the highest sustainable quality of life.

Narrow, shaded streets will reduce outdoor temperatures by as much as 20 degrees Celsius, making it possible to comfortably enjoy the outdoors longer than is currently possible in Abu Dhabi's summer heat and humidity. Carefully planned landscape and water features also aid in reducing temperatures, while enhancing the quality of the street.

Electricity
In addition, Masdar City will achieve unprecedented levels of demand reduction. Masdar City will require approximately 200 MW of installed clean power versus more than 800 MW of installed capacity to power a similar city based on conventional design.

The city will minimize energy demands by deploying the most energy efficient techniques available, and that reduced demand will be met using renewable energy. Opportunities for producing biofuel are currently being evaluated along with other sources of clean, renewable energy. New technologies, such as photovoltaics, concentrated solar power and waste to energy, will supply 100 percent of the energy needs. In addition, the city will supply renewable energy to the national grid to provide regional carbon reduction benefits.

Water
Masdar City's water needs will be cut by more than half compared to conventional cities. It will require around 8,000 m3 per day of desalinated water versus more than 20,000 m3 per day. Water will be provided through a solar-powered desalination plant. The city will also utilize a broad array of water use reduction technologies, including high efficiency appliances; grey and black water recycling; landscaping with low water use native plants, seawater greenhouses, dew catchers and rainwater recovery. Further, landscaping within the city and crops grown outside the walled city will be irrigated with treated waste water produced by the city's water treatment plant.

Waste
Masdar City will also severely diminish the landfill area needed by developing systems and encouraging lifestyles that will ultimately eliminate the concept of waste. It will provide an environment that enables a zero waste lifestyle through the reduction, reuse, recycling and recovery of waste materials. Ninety-eight percent of the city's waste will be diverted from landfills by 2020, with the ultimate goal of zero waste to landfills.

Transportation
Masdar City will be the first city to operate without fossil fueled autos and trucks. The design of the city will allow individuals to live and work without the need for a personal vehicle. Masdar is also creating the first large-scale transportation system that is carbon neutral and emission free.

Masdar will deploy an integrated transportation system that will utilize revolutionary Personal Rapid Transit (PRT) and the Material Rapid Transit (MRT) systems that, together with pedestrian and public transit methods, will safely move people, goods and emergency services in a multi-level, barrier-free environment. The PRT will have 2,500 vehicles generating 150,000 trips per day, and the MRT will be capable of making 5,000 trips each day.

Masdar City Partnership with WWF's One Planet Living
Masdar City is one of the flagship projects of the "One Planet Living™" programme – a global initiative launched by WWF (also known as the World Wide Fund for Nature and the World Wildlife Fund) and environmental consultancy BioRegional. One Planet Living™ aims to prove that it is possible to live within ecological limits and still improve the quality of people's lives. One Planet Living communities, such as Masdar, aim to put ten principles of sustainability into practice: 1) Zero Carbon; 2) Zero Waste; 3) Sustainable Transport; 4) Local and Sustainable Materials; 5) Local and Sustainable Food; 6) Sustainable Water; 7) Natural Habitats and Wildlife; 8) Culture and Heritage; 9) Equity and Fair Trade; 10) Health and Happiness.

However, Masdar City goes beyond the principals of One Planet Living™. It will take sustainable development and living to a new level designed to lead the world in understanding how all future cities and towns should and could be built.

Masdar City received the first World Clean Energy Award from the Transatlantic 21 Association in Basel, Switzerland. In September 2007, the city's design was voted "Sustainable Region/ City of the Year" at Euromoney and Ernst & Young's Global Renewable Energy Awards.

Further Information:
Solar Progress will provide regular updates as the MasDar project gets built.