

# Zero carbon, zero waste city being built in Abu Dhabi (w/ Video)

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(PhysOrg.com) -- A new eco-city being built in the United Arab Emirates (UAE), Masdar City, will be the world's first clean technology city, relying entirely on renewable energy sources, and being free of cars, skyscrapers and waste.

Masdar is being built by the [Abu Dhabi](#) National [Energy](#), Global Energy Company UAE, as a walled "clean technology cluster" on the outskirts of Abu Dhabi, the capital of UAE, and close to the Abu Dhabi airport. The terrain in the region is inhospitable desert, but the six square kilometer

city is planned to support a population of 50,000 people sustainably, using the blazing desert sun as its main energy source. The solar farm to power the city is already built, and is the largest in the Middle East. The city will also be home to a university and over 1,000 businesses.

The boundary walls prevent outward sprawl and keep the city compact, and there will be no skyscrapers. The narrow streets will be lined with buildings close enough to shade each other, with the vertical faces fitted with screens to keep out the sun but allow the breezes to flow through. The streets are designed for pedestrians, and no conventional cars will be allowed through the city gates.

Electric vehicles will be allowed within the walls, and other modes of transport include a Personal Rapid Transit system, or driverless podcars powered by solar-generated electricity. The podcars will be guided by magnetic sensors and go wherever you tell them to, but stop immediately if an obstacle is in the way. With no conventional vehicles, the quality of air in the city will be excellent, and according to the director of the project, Kaled Awad, “that alone will bring you safety, health and happiness.”

Other ideas being tried out in the developing city include a circular array of mirrors on the ground that focuses light on a tower in the center. The tower redirects the one-meter wide concentrated beam of light down to a system that collects the heat to drive generators. Another idea is using thin foil coverings to keep out heat. Gerard Evenden, the chief architect, said this idea originated in a proposal for a moon base. Another innovation is a 45 m wind tower that will draw breezes through the streets without using energy. The tower will bear a beacon to show the city’s energy use: blue for good and red for too much.



The city will be carbon neutral, using electricity only for its desalination plant, some air conditioning, and for gadgets. According to the designers, the city's mantra in relation to power is: "only use energy when you have exhausted design."

The city is designed by British architects Foster and Partners, and is largely being funded by Sheikh Khalifa bin Zayed Al Nahyan, Abu Dhabi's ruler. The estimated cost is £10-20bn (\$15-30bn). Masdar is expected to be finished within 5-10 years and promises to become the Silicon Valley of [renewable energy](#), providing a global hub for research and development of sustainable technologies.



**More information:** [www.masdarcity.ae/en/index.aspx](http://www.masdarcity.ae/en/index.aspx)

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