



## Eole Water in « Cities Today », sept 2013

<http://cities-today.com/>

End of the article

**Can wastewater help the UAE meet growing water demands?**



Turbines can produce over 1,000 litres of water a day from humidity

## Turning air into water: Dubai tests revolutionary technology

A related issue is that of keeping the UAE supplied with sufficient potable water. Currently, much of this water is produced by the expensive and subsidised process of desalination but new methods of keeping up with demand have emerged.

A cutting-edge solution from France that produces potable water from the humidity in the air is undergoing testing in the UAE. French-based Eole Water has built a wind turbine capable of condensing the water from air at a rate of 1,000 litres per day when the temperature is 25 degrees Celsius and there is a relative humidity of 60 percent. The turbine uses a combination of wind energy and solar power.

The stand-alone turbine is 30 metres tall, weighs 12 tonnes and does not require any connection to the electric grid or water infrastructure system. It is due to be installed at the Emirates Marine Environmental Group's (EMEG) headquarters at the Ghantoot Nature Reserve just north of Dubai, thanks to a new partnership between the two organisations. The project is costing AED 6.7 million (US\$1.8 million) and is funded by Eole.

The Ghantoot Reserve is a specially protected area of coastline that EMEG take care of – it is the only natural beach remaining along Dubai's coast where turtles return to nest. EMEG's remit is to pursue sustainable development solutions and to protect the natural environment.

"Access to the area is restricted and in future people will only be able to arrive on horse or on foot," says Ali Saqar Al Suweidi, President of EMEG. "The new turbine will be used to provide electricity and water to power our air-conditioning units and lighting. We are hoping to create a no-carbon area."

Testing of the turbine has already taken place in Abu Dhabi, where it was able to function in harsh desert conditions such as sandstorms and temperatures above 50 degrees Celsius. The results of the initial tests saw the production of more than 62 litres of fresh water per hour, with an average humidity of 45 percent and an average temperature of 24 degrees Celsius. However, sources at Eole believe they will see an even higher output once the location is moved closer to the coast.

Most significantly, testing of the water produced revealed a much higher standard of quality than that required by the World Health Organisation for potable water.

The current price of purchasing a turbine varies from €200,000 to €600,000 depending on the specific design. There is also a smaller, more easily to assemble turbine called Nerios, which costs €25,000. "It is a valuable solution for small communities, individual houses or families," says Cécile Hourtané, Marketing and Communication Assistant for Eole Water. "It's also useful for emergency situations, for the army, or for disaster relief, and for places that have to manage the availability and supply of fresh drinking water, such as medical centres, campuses, leisure resorts, stadiums and so on."

Eole are promoting their technology in Asia, Africa and Latin America where they say they have received encouraging results. "We want to install different machines, wind turbine or solar models depending the climate, and spread the technology around the world to address clean water issues everywhere," explains Hourtané. "To achieve this goal, we have a few partners who support our approach by raising some opportunities locally, with private or public stakeholders."

Eole are also interested in studying the turbine's feasibility for cities. "We have realised studies in the past regarding the installation of several ground-based models, operated by solar and grid energies, side by side in a same facility to provide several thousands cubic meters of drinking water per day," adds Hourtané.

The exciting news about this turbine as a means of producing water is not only that it uses clean energy to do so, but also that the quality of the water produced means it is good enough for human consumption – an issue that wastewater treatment plants are still battling with. And even though desalinated water is suitable to drink, its production is costly and degrading to the environment due to the energy used and the sludge produced as a by-product. Therefore Eole's turbine could play an important future role in the production of water in arid cities.