

# Masdar Arial Park

## A New Energy Urbanism, A New Skyline



### Airships

Since centuries past, man has promoted a race for the control of the skies, developing a series of inventions that even in the beginning, posed an uncontrolled creativity, even the ideas for the cities floating in the skies. The accelerated advance product of the industrial revolution, led to Jean Pierre Blanchard in 1784, incorporated into a hot air balloon a manual steering propeller starting the airships. The golden age of the zeppelins, which lasted almost 3 centuries, ended with the fire of LZ 129 Hidenburg. Horrified, the spectators watched as thousands of cubic meters of hydrogen caught fire as a result of an electrostatic accident. Since then the airships lost complete popularity, being the gas used at that time, highly flammable. However, with the current technological development, can we break that paradigm?

It is clearly possible. It is only a matter of using less dense elements than air in order to apply the Archimedean lift formula. This is how we find a variety of gases and specifically 2 that are not flammable, such as argon and helium, the latter only 7% less efficient than the highly combustible hydrogen. They are also noble gases, clean and depending on the technology used, they do not require recharges except to maintain a hermetic infrastructure that prevents their escape, being highly efficient and economic, a gateway to break the paradigm of airships, as well as generate opportunities in their uses such as transportation, science, technology and energy.

### Maximization of solar energy

In general, photovoltaic panels are installed at ground level occupying large areas of land, as well as directed to take advantage of the greatest solar impact. In addition, they are not used in dense cities due to the generation of shadow between buildings. Is it possible to maximize the use of solar panels?

The evolution of this technology has developed an incredible advance in the last 10 years, as well as its popularity and therefore its costs. This is how the industry has produced new formats avoiding the rigidity of the traditional panel, making available to the market flexible solar panels, which adapt to all kinds of forms.

### Aerial Park

For the new development of Masdar, we propose the installation of an air plaza in the designated area. About 40 photovoltaic airships will be suspended in the Masdar skies, with a program that involves restaurants, bars and viewpoints, open to all public, transforming into an attractive public space that can be seen from all places, freeing the ground level for incorporate a social program, a new concept of urban planning, a new skyline for Masdar.

### Energy Efficiency and Cost

With a total area of 1,800m<sup>2</sup>, of which 60% is highly efficient (1,080m<sup>2</sup>), and the performance of 1m<sup>2</sup> of photovoltaic panel is approximately 200w, each airship is capable of generating 216,000W. In total, the project has a production capacity of 25,228MW per year, which can be perfectly introduced to the city's electrical system, since to drive the airship, only helium is necessary.

By having USD \$ 20 for the generation of one watt, and each airship generates 216,000 watt, the budget for airships is USD \$ 4,320,000, and for our air plaza, the total project considers a final budget of USD \$ 170,800,000, calculation that clearly leaves a surplus to be applied in public space or installation of this prototype in other sectors, promoting the use of renewable energies, production of clean energies and new energetic urbanism practices.

### 2 Energy solutions in 1: Solar airships

We will add to the airships flexible solar panels, which allow to be in higher height, to capture the entire solar route during the day, as well as opening the option of raising it above the level of low clouds or fog, even leaving the option to raise them up to overcome the high cloud level, having a high efficiency throughout the year, even in winter periods.

On the other hand, using helium blimps, not only leaves the myth of the risk of this old means of transport, but also promotes its use, being highly ecological, with a large load capacity, a real opportunity for development.