

## Energy Tower

MASDAR, Abu Dhabi 2019

We understand Masdar as a planned a global avant-garde project. It is worldwide known as a pioneer of the sustainable energies. Thousands of tourists use their facilities and technology experiences as an example of how technology can contribute to help our planet

Considering this idea we try to match it to the “Energy Tower” proposal. Expecting being a interactive, dynamic and multicultural project. The whole idea has been analyzed to be able to take advantage of this resource, the wind, in a more efficient way than the conventional turbine involving in the common public space of the Masdar citizens.

The project will use the wind conditions surrounding the intervention area. Fortunately for us we will take advantage of the constant north-west winds around around 9-11 kts coming from the park open space that don't interrupt the continuous movement of the wind in this area.

This kind of turbine has been developed previously as an alternative of the traditional Eolic turbine. The advantage of the single element is:

- Fully independent from the wind direction 360.
- Silence, permitting us to create a meditation area and not disturbing the visitors.
- Permits being efficient with an smaller dimension (compared to the traditional Eolic turbine)
- Safetier for visitors and nature of the area.
- Low cut speed (around 1.5m/s) required for it functioning so it will be used around 150 days per year, 1,5 more days than the conventional turbine.
- Resist high speed of wind until 200 km/h and a living period around 70 years.

Each one tower module produce 40 Kw. The whole project will gather 400 Kw, 400,000Kw. Compared with the approximate cost of the entire project (500,000dlls) we will get a cost of 1.25 dlls/watt. Annually it could gather 1,20,000.00 Kw (considering 20 hours per day and 150 using days during the year)

Differently to the traditional turbine module, we locate then in towers to multiply the amount of energy that will be generated per used area. This kind of prototypes had been also been used experimentally in some areas of Europe for example the ones proposed by Waldemar Piskorz in Poland.

The main materials used in each module are concrete, steel, wood and the elements required for the turbines and electrical canalization. Each tower has 20m tall and 5m wide with four turbines. Each turbine is thought as a small exposition place; there are some letters on the top of the element that the visitors should seek. It will try to explain more about Masdar initiatives and future ideals from how a sustainable living could be. Some of the topics could be Culture, Traditions, Future, History, Present vs. Future and modernity

The site not only responds as a communication path between the surrounding spaces on the zone (the public open spaces between and the habitation areas) but also connects all the towers to concentrate the produced energy with the central area where the energy path finishes. The idea is to teach every person the functioning of the system and how it contributes to the city's energy supply. We strongly believe that persons will value more what they really know, in this occasion the method of getting energy from the wind. Each small module has a open space with vegetation that permit viewing all the complex as well as the presence of the central three-module-towers that seeks be a representative public pace for presentations or art exposition. It has underground exposition spaces, bathrooms, and energy machinery rooms. Also different levels of stands, upper sidewalks and a lookout space on the top of the three-module-tower that permit each visitor to contemplate the design from different perspectives.

The project environment impact will be low; we will consider open most of the area of the place, considering the sand part of the Masdar identity. Just the concrete paths and the module's frames and foundations. It will have a good interaction with nature, not causing an important sound and also for considering it safer for birds and persons than the conventional Eolic turbines. We propose small but well-designed green areas under each module and the main plaza, considering the area as a low water requirement by each self. The main impact we look for is being able to open peoples idea of the day by day use of sustainable energies.