

Masdar, as a plant is rooted in the ground and erects its stem high in search of light, you take the rays of the sun and turn them into energy. You adapt to the desert by reflecting the sky on your skin. You recognize your surroundings and respond to the environment with your subtle movement, your act is like life itself. Masdar, you wrap us, you protect us from the arid and dry desert climate. The emptiness of your interior gives us a comfortable space, habitable for human use. And at your peak, you are the possessor of the most valuable, the primordial. That source of energy that allows everything. Masdar, possessor of light.

Based on a thorough analysis of the requirements of the Land Art Generator Initiative (LAGI) 2019 Abu Dhabi "Return to the Source" (World Energy Council Congress Partnership & Masdar City Sponsorship) we define as an objective to respond with a project that seeks the artistic reinterpretation of the infrastructures of renewable energy generators as an cultural extension of Masdar City, Abu Dhabi.

The study and experimentation carried out for the development of this project are based on the design principles of:

-Dynamise the plastic mediums of renewable energy generators promoting their virtues in an innovative and consistent manner.

-The architectural aesthetic applied to visual communication, the use of light as a physical and material property of the artistic object.

SIZE COMPARISON



Willing to serve society, fits a young, mixed, compact, walkable and uniform scale city. Surpassing the horizon in order to become an icon of the city, its monumental scale positions it as a symbolic reference of Masdar's mission, become a net zero-carbon-emissions city. Located in a network of public spaces integrated into the urban design, it incorporates large areas of renewable energy production in its programmatic system and expanding them in its immediate environment.

Technology Used:

There are diverse types of renewable energy generators and the most appropriate to implement in our design concept should reinforce the intention to serve the people and their city. The intention to interact with people is answered by a type of technology already implemented in the current stage of construction of Masdar City, the famous Wind Catcher.

This technology is the main guideline of formal conception, opening at its base in a way that covers the public space and surrounding buildings. This type of technology is autochthonous of this arid and dry geographical area, whose precipitation is practically nil during several months of the year, it has been invented centuries ago in order to reduce the temperature of interior spaces in buildings. Adopting this vernacular architectural jewel reinforces the sense of cultural belonging and will keep it in time. Burj Masdar is intended to be recognized as the highest wind catcher ever made, surpassing Dowlat Abad in Yazd, Iran.



However, this being the flagship project of Masdar City, is not limited to environmental control for the use of the inhabitants, we seek to contribute in a significant way the energy production of the city, being able to provide, in addition to the usable public space, electric energy for the development of daily human activities. A technology of renewable energy generation that can be enhanced in an innovative, symbolic and inclusive way with its context. And using the same supporting structure can work optimally, harmoniously and feasibly with our Wind Catcher.

We found the solution in an emerging technology, developed in recent years by Madar Company, Thermosolar Renovable Energy. This generator is based on the use of sunlight for the generation of heat and consequently electrical energy. Consisting of a raised tower that receives UV rays reflected from a series of heliostats (special mirror panels) strategically located around it. This receiver heats substances up to + 500C to generate steam and drive an electric turbine. The surplus of accumulated heat is stored in tanks to produce energy 24 hours a day, throughout the year. The central tower, in addition to rising above the heliostats, receives in a directed manner large amounts of light that make it shine as the source itself.

This is how Burj Masdar was born, covered in an intelligent skin, which in addition to providing closure, gives it a revolutionary connotation in the field of renewable energy production. The outermost layer of this symbolic generator is completely covered by these heliostats, controlled automation to adapt according to the incidence of the sun during the daytime hours, according to the month of the year. This first skin extends over the roofs of the surrounding buildings with the In order to give rise to future developments and to expand its productive capacity. The second skin, separated by a current of natural winds, is composed of recycled mud and high insulating capacity. Special openings are also provided that allow the indirect light irrigation but not the entry or exit of pronounced wind currents to avoid interrupting the correct functioning of the Wind Catcher climate cycle. And in its massive support structure, all the necessary ducts are channeled to an underground storage and security control area.

And finally, at its highest point, Burj Masdar acquires that which has always given us light and energy, that inexhaustible source that allows the life of the planet, our sun, our source. Burj Masdar, return to the source.



PROJECT BRIEF:

On the one hand, art as a cultural expression, on the other, renewable energy as our sustainable future. Whose perfect synergy merges into a plastic element, capable of generating clean energy, and influencing the natural and social environment. Moving away from the generalized notion of cold and industrial structures, Burj Masdar emphasizes the image, taking full advantage of the strengths of an energy generator, the typology of this infrastructure is key. The type of renewable energy chosen allows a specific interaction with the city and its inhabitants, therefore, Burj Masdar seeks to put itself at the service of the people and to resemble its city.

Burj Masdar aims to transcend its physical context and embrace a broad global and multifaceted context, whose media impact contributes to the positioning of Masdar City as a tourist destination for the future. Just as the international image of the big cities is characterized by its iconic buildings, Burj Masdar will be recognized as the main monument of an emerging city, which was born less than two decades ago.



Barcelona





Dowlat Abac Yazd (Today's Heightest Windcatcher)