**THE SOLAR URBAN PARK - 2019**

**Description**

Masdar city lies in the middle of the deserts of the Emirates of Abu Dhabi. Due to high temperature and no rain, the city lacks green and vegetation which means NO park for public realm. The idea of this project is to provide a recreational space “An Urban Park” for the public gathering in the desert city. This park will utilize solar energy (available in abundance) during the day and as a result laminate itself after the sunset convertinginto a night park. The Urban Park incorporates artificial solar trees and small artificial planters. The tree tops have flexible mono-crystalline silicon photovoltaic cells which help to generate energy. A total number of 60 trees are spread throughout the site generating a total of 8000MWh in a year. The planters act as a tulip garden at night, when they light up after the sunset with hexagonal geometry giving ~~s~~hape to the solar urban park.

**Master Plan**

The site has been designed as a vibrant and contemporary piece of architecture and landscape keeping with the spirit of the city of Masdar. The site consists of buildings in the surrounding, with an existing street cutting it in the middle, thereby bifurcating it into two parts. The site is accessible from every possible side; there are no barriers to enter the site. The site grid is inspired by Arabic pattern, hexagonal fractals having been used to make the master plan of the site. In between the two hexagons there is a path surrounded by six shaped geometry. Each hexagon consists of 6 solar trees on the nodal vertex and artificial planters within the geometry. Gazebos and permanent sitting places will also be provided as relaxation points. Hexagonal shaped design morphology is maintained throughout the site keeping in mind the green cover and walkable footpaths in summers as well as in winters. The side of the site near to the buildings is covered with local available trees in the desert area.

**TECHNOLOGY**

The technology we are using is **Flexible mono-crystalline silicon photovoltaic** cells which help to generate energy. A total number of 60 trees are spread throughout the site and each tree has 20 PV panel on the top generating a total of **8000MWh in a year**. The PV panel on the tree captures the solar energy and store it in the roots (base). From there it is distributed to nearby artificial planters for night glow and the remaining is sent to the AC generator.
The Trees is the only design installation with 8.5 meters high and the total area of PV panels on 60 trees is 205 Square meter.
The solar trees prototype has steel structure with PV panels on top. Majority of the site is kept raw the way it is so that the local vegetation can grow. Concrete covers the rest of the site with some self laminating lights on the border.
The approximate cost of the project will be $12 per watt of installed capacity.

**IDEA AND ENVIRONMENTAL IMPACT**

Imagine, trees taking sun energy and giving back electric power rather than carbon dioxide and oxygen. The project looks at instigating the use of solar in the artificial park by creating trees as energy giving elements.

The vegetation is depleting throughout the world and in places like Abu Dhabi where majority of land is covered with sand, trees are nowhere to be seen. The ‘solar trees prototype’ draws inspiration from the dead trees with no leaves yet being useful to convert solar energy into power. The Solar tree is constantly transforming solar energy into electrical power. It changes the perspective of people looking a solar panel as a large panels lying on land.

The project is an amalgamation of technology and landscape Architecture. Solar Trees and artificial planters function not only like energy generator but also in the unique way change the surroundings and look at the future of Urban Parks. The proposed design is not an enclosed space; it can cater variety of events for recreational activities and interaction of people.

 The Artificial Planters together acts as a tulip garden from Netherlands. This proposal creates a garden atmosphere by providing flowers in the park at every hexagonal design. During the night the artificial flowers have another active role; they glow in the night and convert the garden into a night park where people can walk around and relax, giving it a similar effect of tulip garden with the cool weather in the night.

The idea shows the symbolic relations between technology with nature. This is a landmark which gives environmental awareness. It also aims to preserve the physical and cultural resources of the site. The Design does not impact on environment, and natural habitat, ecology, land quality, water resources, air quality, existing flora and fauna.