URBAN OASIS

**Environmental Impact Statement**

Masdar is an unique place not only in the Middle East. It is a place where many of the greatprojects and inventions are introduced**.** It is a place where brave ideas are tested for havingfurther longterm benefits. But Masdar is not only unique in terms of its approach to the technology. It is a modern place and at the same time deep-rooted in a local culture and climate. The design of URBAN OASIS tries to respond to all of this specific conditions.

The idea is not to invent new technologies to come up with something new. The idea is to learn from the past and find out new values by understanding the existing situation and combine them in a new way. This approach allows to get an unique and modern concept which is a creative continuation of the local history that is based on harmony with natural environment. This is reasonable way to create local identity which contemporary society deserves.

**Technology used**

Due to the fact that Masdar is located in the place with on of the highest solar potential on the globe it has been decided to use the PV panels. This technology is applied for the roof

structure and can collect energy during the day. Another technology thatis used are

Wind Catchers which are collecting wind streams from above the roof and turn it

down to the ground. This way the space underneath can cool down a few degrees and

let the wind blow what makes the place more comfortable for the people

**Dimensions**

The design fits the given plot and it is divided

into two parts.

The South-Eastern part is dedicated for the market. The roof

structure is roughly 105x50 meters. The height of the highest Wind Catcher is 14

meters. The area is 5250 sqm.

The North-Western part is designed as a public plaza at by the rounded shape gives more open character. The height is 16 meters above the ground. The diameter is 75 meters and it’s has hole in the central part. The area of the roof is 4010 sqm. The total area of the design is 9260 sqm.

**Materials**

Oasis is designed as a lightweight structure including roof substructure and supporting

columns. To limit the costs and make the environmental impact stronger, it has been

decided to use recyclable materials as much as possible. Columns are made of recyclable and reinforced cardboard. Fabric used for creating vertical canals are made of polyester. This material is a taken from recycled plastic. Using plastic wastes for some components of the structure is helpful with reducing production. Nevertheless, the most impactful is what values and beliefs stand behind the whole concept of supporting local, bottom-up initiatives to gain global effect and recognition.

**Solar Energy Potential**

Assumptions:

Integrated and transparent photovoltaics (BIPV)

Dimensions of the glazed element (equilateral triangle with a side of 449mm) let for placing one cell

with standard dimensions of 156 x156 mm

Accessible area – 9260 m2 (12880 single elements)

Average power of each mono crystalline cell – 5 Wp

According to the attached map of Solagris the potential of photovoltaics in Masdar is approximately 1750 kWh/kWp per year.

Having one cell that generates 5 Wp and the area that accommodates 30360 of these cells the virtual power is 212,52 kWp which translates to generation of electric energy of 371,91Mwh/year. The simulation gave the output of 392,7 MWh/year

The full cover of the the given area (not considering the shape) with rectangular and partly transparent modules of BIPV type gives the opportunity of installing approximately 1155 kWp which gives the generation of 2019,6 MWh/year.