**Energy Semi Domes**

**Design aspect**

The design is inspired from the Arabic meaning of Masdar which is Source. The source of energy being the sun, the form is generated as orbiting semicircles relating itself to the solar system in which planets orbit the sun.

Masdar is a city where people from around the world come and live together harmoniously while witnessing green energy. The Proposal tries to preserve the existing landscape by minimizing intervention on the ground level and use the space for social interaction. The Solar panels are arranged in a circular manner and between each circle there is a gap to allow more natural sunlight to light the space under it.

The opposite side of the solar panels are painted colorfully to create a playful scene when viewed from the ground. Led lights gives the continuation of this effect during the night time. These colors represent the harmonious character of Masdar city where different cultures co-exist.

**Photovoltaic Thermal and Wind belt Energy harvesting**

The project uses energy harvested from sun and wind. The system uses solar energy to generate electricity and at the same type trap the heat energy reflected from solar cells and use it to provide hot water for residences. At the same time it increases the efficiency of the solar cells by cooling the cells. This enables the efficiency of the solar system to reach upto 75%. Wind is also harvested by aerostatic flutter system above 3meters and in between solar panel rings. Part of the generated energy is used to pump water into the PVT system and to the housings.

Solar panels are placed in a circular manner and in different angles while making the dome shape. This allows to maximize the amount of radiation received at different time and season.

**Construction technique**

Steel structure is used to support other steel rings which in return are used as racks for the PVT panels. Steel rings collect both hot water and electricity from individual panels and wind belt. Then they feed it to the main structure which in return is collected through the underground line.

**Energy Production**

Solar panel=8320sqm\_ 6.5Kwh/day \_54mwhr/day- Electricity

Flutter length- 480m \_ 0.1kWh/day \_ 0.048mwhr/day- Electricity

Total of 54.048mwhr

And supply of hot water

**Cost estimation**

392USD/sqm – PVT panel(3.2m for 8320sqm)

3000USD/ton – steel structure(750Kfor 250ton)

Total- approximately 4m USD including other installations

**Environmental Impact assessment**

The effect to the land is minimal. The design intervenes the ground level only through the parabolic columns. But still people can engage into the landscape. Both the electric room and water pump room are embedded underground. Sunlight can pass between panel rings. The energy production does not release any chemicals to the site.