**Geometric Solar**

**Concept**

Our approach is driven by several key concepts:

1. Photovoltaic cells, which constitutes the generative parts of the solar panels, are shaped after geometrical patterns used in the Islamic architecture.
2. The solar panels are designed to be used as urban furniture pieces, which helps to make the square more user-friendly.
3. The design of the square is intentionally kept simple. The round solar panels are laid to encourage different activities such as socializing, resting, eating, walking, which adds to the quality of living and working in Masdar city. Furthermore, the square acts as a well-structured base or foundation that can be used by other artists for their exhibitions and events. In other words, the design of the square is done in a way to act as a catalyst for others to demonstrate their creativity in the square. This keeps the fresh new idea flow into the square. Our intent is to make the square not only a center of interactions but also a place of arts and events.

**Solar Panels**

The panels are shaped as balls to increase the surface of panel increasing the energy generated per volume. The diameter of the ball is 0.5m which is the height of an average chair. Each solar panel is equipped with energy storage that is used to store the energy generated during the day. Furthermore, the panels are equipped with LEDs that illuminate calming lights after the sun is set (see board 1).

The solar panels are able to continue generating energy when are partially shaded such as when a person stand or sit in front of it. The panels are fitted with sockets that can be used by the public or artists to power their exhibition.

**Layout**

The square is designed to connect and bridge between different areas of Masdar city. The panels are laid out directly on the ground to increase the attractiveness of the square and have minimum visibility affects on the adjacent buildings. The solar panels are organized as two lanes that are stretched along the long side (300m) of the square. The two lanes form a 30m wide corridor between them to keep the flow of pedestrian traffic unobstructed (See board 2). Each lane constitutes of 20 rows of solar panels spaced one meter apart. Each lane will have 4000 solar panels (20 x 200). Some decisions such as the spacing between solar panels are best to be fleshed out after performing experiments and observing people usage of the square over time.

**Energy Production**

Each solar panel has a capacity to generate about 100w. With 8000 panels, the total peak capacity of the square is 0.8 megawatts which can generate 1.3 MWh annually (0.8MW x 5 hours x 365 days).

**Summary**

We believe using the beautiful Islamic geometrical patterns in the design of our solar panels will increase the acceptance of the technology and increase its usage in the region. People will perceive them not as a source of energy but pieces of arts. This has also the potential to spread Middle Eastern design and Islamic arts globally.

Our simplistic layout of the square allows to meet our objectives to make the site attractive, expandable and highly open for events and exhibitions, and cost effectiveness.