**PAVEGEN-ENERGY GENERATION THROUGH STEPS**

The platform of the Taqa Burj is inserted with Pavegen sidewalks which converts steps into electrical power.

**HOW DOES THIS MECHANISM WORK?**

Power is generated when a footprint compresses the board from a depth of 5mm to 10mm. Through electromagnetic induction by copper coils and magnets, each step produces around 2 to 4 joules, which generate an avg. of 6W. Energy. This energy is stored in batteries that can power light or other devices or can be transplanted to neighboring energy consumption.

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**PIEZOELECTRICITY-ENERGY GENERATION THROUGH APPLIED STRESS**

The numerous tubes hanging from the top of Taqa Burj are piezoelectric tubes which is composed of discs filled with piezoelectric material, which generates electricity when stress is produced on it through blowing winds.

**HOW DOES THIS MECHANISM WORK?**

When piezoelectric material is placed under mechanical stress—through blowing winds, a shifting of positive and negative charge centers in the material takes place, which then results in an electricity generation which could be stored swiftly in batteries.

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**LENS INTEGRATED SOLAR PANELS-ENERGY GENERATION THROUGH POWER OF SUN**

The lens plate and the individual lens sheets over the solar panels present on top of tower increases the intensity of sunlight, thus maximizing the energy gain. For temperature control, a liquid metal thermal cooling system is integrated in ordinary PV cells designed by IBM.

**HOW THIS MECHANISM WORKS?**

**MECHANISM 1: LENS PLATE**

A single lens plate disc is provided at the top of the tower constituting a total of twenty-four biconcave lenses. These lenses intensify and scatter the sunlight over a funnel topped with solar panels. The solar panels are made of reflective nature also which would reflect some amount of sunlight further in the funnel thus controlling the temperature and uniform energy generation.

**MECHANISM 2: LENS SHEET OVER INDIVIDUAL PANELS**

A total of eighteen solar panels is topped with lens sheet containing six biconvex lens in total. These lens converges the sunlight thus increasing the energy gain.