**Bladeless Wind Oscillators**

The oscillators at the top of today’s wind towers gain power from the airflow coming from it. Additionally, because of the height they are usually situated to maximize the energy production with windmills, an aerodynamic effect that produces a return of kinetic energy.

**Vertical Drop Amusement Ride**

The installation becomes dynamic with integration of the bladeless oscillators. In the natural curve of the tower necessary for harvesting the updraft energy, it is utilized to desk the ride lane. With a bladeless counterweight design, this ride will use minimal energy to operate, thus will be sustainable and in line with plank’s “pure” image in keeping with the tradition of Luna Park.

**Solar Updraft Tower**

Designed to extract the available energy from the solar tower is cylindrical, its base functions to create the updraft, and it is the solar updraft column. The platform will be used for the wind turbines, and the bladeless oscillators.

**Solar-Updraft Wind Turbine**

A super-efficient, aerodynamic wind turbine made with composite materials will spin to capture energy from the updraft airflow in the tower. The energy converted from the wind to electricity, with the turbine, will be fed into the utility grid.

**Thin-Film Photovoltaic Cells**

The thin-film photovoltaic array is perpendicular to the direction of the wind, at an oblique angle. The southern half of the array will increase the tower’s collection area, and increase power generation efficiency. The power generated with this system will be fed into the utility grid.

**Walkable Glass Bridge/Heat Collector**

As part of the integrated design, the solar tower, weather bridge is a hyperbolic cavity that induces the thermal energy from the light and radiant heat spectrum. The bottom of this cavity has thermal storage designed to reject heat during night times. Therefore, the bridge creates updraft conditions throughout the day.

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The thin-film photovoltaic cells are arrayed on either side of the walkable glass bridge. Both the bridge and the cells convert the same energy of sun into electrical power. However, the bridge is acting as a heat collecting enclosure, which helps create the wind updraft through the hollow of the solar tower, rotating the turbine. At the very top of tower, the bladeless oscillators capture energy from vibrations. The collective renewable power generation of the design is estimated to be approximately 280 MWh per year and will feed into the utility grid. The annual energy produced by the tower and bridge structure is able to produce the annual energy consumption required by the vertical drop ride.