

## LAND OF THE NEW AGE

Total Annual Energy Generation = 48,615.597 MWh

Gravity Storage Capacity = 2,566.242 MWh

Technologies Used : DSSC, Monocrystalline PV, People Movement Kinetic Energy, Wind Energy, LSC, Direct Air Carbon Capture, Waste to Energy Gasification, Solar Ponds And Pico Turbines and Gravity Storage.

Approximately 50 percent of the site is used for design considering a vast range of technologies that can be as modular and replicable as possible mostly serving multifunctional purposes. The idea is to inspire people of all the various forms of renewable energies that are possible. From movement of people creating renewable energy to inspiring people to give waste to the area for energy, design is focused on engaging people in the process of generation, the farming lands and greenhouse and algae tanks, creating food production along with energy and capturing carbon from air by algae and direct air capture, removing carbon dioxide from air and providing that captured CO<sub>2</sub> for growth enhancement in greenhouse and since we need all possible technologies to mitigate climate change right now.

Creating multifunctional modules collecting rainwater, generating energy from solar, wind and other.

Rainwater Collection is used as secondary function in most modules which is diverted by gravity to generate energy. Taking Annual Precipitation of 650 liters per square meter depending on recent earlier figures. (Since Most Modules also serve the purpose of rainwater collection which lead water by gravity to small turbines.) Total Area of Site serving the purpose of rainwater collection = 36,273 Square Meter. Annual Rainwater Collection for Hydro and Solar Pond Purpose = 23,577,450 liters.

SEE-SAW : Derived from working principle of a lifting crane, Heavy weight is hanged on the shorter end which makes it resting position horizontal. When people wish to move from higher ground to lower as designed on site. See-saw is used in controlled application which uses weight of the people on the longer end having lighter weights to lift heavy weights on its shorter end. These heavy weights have GPE now which can be used to generate energy when needed.

KINETIC RAMPS : A Circular ramp is made up of 40 Modules made up of planks connected by rope to Kinetic Energy Generation devices. Each time a person uses the circular ramp to reach the higher platform to enjoy views of the land. Each step he takes on all 40 modules which make the ramp, energy is generated. This energy can be stored in Gravitational Potential Energy in the central platform which can raise by Hydraulic system.

CONCENTRATED WIND SHELLS : On the principle that turbines are most efficient when with constant flow of wind from one direction, a shell is designed to concentrated wind onto the turbine from the dominant wind direction, South- West, and having DSSC on top and the wind from opposite side is blocked by a smooth shaped module generating energy Solar Energy.

Bamboo Solar Module : Bamboo is one of the most desirable materials because of its low carbon footprint. Hence, is utilized in many of the modules, public platforms, ramps, solar structures all over the site. Generates energy by solar and serves the secondary purpose of rainwater collection. The module is mostly used on top of open farming area created in the site.

Agrivoltaics : The farming is created along the periphery of the site connected more with the residential area to give a positive message of a sustainable way of life. The farming area has Public Squares created in between them and the farming area is combined with Solar Bamboo and steel modules.

Waste to Energy : Meaning Behind : Creating a public activity in the park for people to place plastic, paper and other waste regularly in the one of the several solar dustbin modules placed in important places of the park as a symbolic gesture of it then creating renewable energy.

Gravity Towers : Gravity Towers are designed inspired from Roller Coasters, which lift boxes to the top as a form of storing renewable energy generated at a time not required. Each tower has 10 lanes, each lane lifts boxes of filled with mud of 320 kg each. Since, our design has created levels, the mud extracted by creating lower ground is used to fill the boxes for gravity storage. The steel tracks and steel structures that are of no further importance can be reused for the construction of these towers.

Renewable Greenhouse : Along with the medium-scale food production in greenhouse, the temperature desired inside is maintained by Geothermal Energy (Heat Pumps), the CO<sub>2</sub> that is needed by the production is sourced by Direct Air Carbon Capture Technology that is used. The production area of the greenhouse is 70% covered with LSC on sun exposed sides and with monocrystalline PV on top of storage and working area of the greenhouse.

Algae Lamps : The warming of our planet is the most serious issue upon this generation, this module has Algae growth tanks which capture Carbon Dioxide from our environment and thermal water heating on top by concentrating sunlight onto the central tube by mirrors and rainwater collection and public light pole function along with it.

Honey Bee Solar Wind Belts : Along with energy generated from Solar, The cables supporting the petals on the outer end are connected to small motors in central rod. When wind pushes against these DSSC petals, it runs these small motors to create extra renewable energy.

#### ENVIRONMENTAL SUMMARY :

Since most materials used in construction today come with a big carbon footprint, bamboo is utilized in as much modules as possible from a sustainable view. The steel used in site is facilitated by the steel tracks and steel structures being recycled. Agrivoltaics and greenhouse production is focused to create eatables for the area. The carbon is captured by Algae tanks, Direct Air Carbon Capture, and almost 50% of the site left for plantation. The mud excavated is used in boxes for gravity storage.