## **The Solar Tree**

The project explores the concept of a vertical “cellular,” leafy” observatory tree tower, which encourages both individual and collective viewing/participation. The vertical core consists of a circular ramp that connects to an orbicular corridor leading into individual observatory cells. These cells are rotated and stacked to create a dynamic assembly that offers varied vistas and experiences at every level. Each modular prefab “cell” consists of projecting balconies that allow the viewers to step out of the tower’s skin and absorb the landscape and environment devoid of any visual barriers. These cells also house lightweight “solar leaves” that potentially contribute to net-zero energy requirements.

The “Tree” aims to address sustainable design initiatives governed by net-zero design principles to combat climate change. The top of the tower is capped by a sky deck and an all weather glass pod. The top floor offers a 360-degree panoramic view of the breathtaking landscape. The project is conceived as a composite steel and wood structural assembly. These prefabricated modular cells can be deployed and erected on site. The “Tree” aims to create an iconic observatory tower in sync with nature and the landscape governed by net zero design principles.

## **Technical Assessment/Technology Used**

The Solar Tree houses 18 Solar Panels on each level which makes a cumulative of 180 Panels of 300 Watt each to harvest Clean Solar Energy of 216kWh per day. Thin-film solar cell, a type of device that is designed to convert light energy into electrical energy (through the photovoltaic effect) and is composed of micron-thick photon-absorbing material layers deposited over a flexible substrate. This enables the tower to harvest 6,480kWh of Clean energy and use it to power up the site activities and send it across the Flyranch for various purposes.

The 35M high tower has been designed keeping in mind the modular and prefabricated units which can be directly assembled on site with minimal efforts. The prefabricated cells are stacked vertically to create a composite structural system in synergy with the central steel core consisting of the ramp and corridors

## **Environmental Impact**

The Solar Tree has been developed to spread about the awareness on the use of sustainable materials and having a very low carbon footprint. The structure essentially uses composite Wood and Steel for the structural support and all the components are modular and prefabricated for the ease of assembly. The intervention is governed by net-zero carbon footprint principles and tries to harvest maximum energy possible with minimum carbon emission.