Integrated use of Treetop Solar as an Essential Part of Outdoor Landscaping

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Abstract: In today's climate of growing energy needs and increasing environmental concern, alternatives to the use of non-renewable and polluting fossil fuels have to be investigated. One such alternative is solar energy. Much of the world's required energy can be supplied directly by solar power. More still can be provided indirectly. The practicality of doing so will be examined, as well as the benefits and drawbacks. In addition, the uses solar energy is currently applied to will be noted. Conceptually, Solar treehouses are not referred to as an essential component for outdoor domestic landscaping. This study makes it a point to make the readers fully aware of the design of such structure and its beneficiaries, carrying along a study of its multipurpose use and its advantages and disadvantages.

Keywords: Solar TreeTop Landscape multipurpose benefits aesthetic conventional

1. Introduction

A huge Impact has been seen, since TreeHouses in Rochester and Maine situated in the U.S. have been an eye-catching site for the tourists as well as the localites, on the Outdoor Aesthetics of a property or be it their conventional benefits for disciplinary use of space. It contains a multi-purpose outlook and is also easy to maintain and build component. In India such conventional rehouses can be rarely found in area like Himachal, Mahabaleshwar, Jaipur and Bandhavgarh where its only used for resorts and cottages. Domestic use of such aesthetic is barred due to negligence towards its leverages.

Solar is not just a very widely famed technology today, but according to the state of cities climatic condition in the Deccan plateau region it has become a necessity to harness the otherwise wasted bit of hate received.

Following the apprehensive methods use in the United States region western-Europe study states treetop structural decorative or treehouse engineering to be a common component in the outdoor landscape architecture.

They are supposedly used for different purpose as for leisure aesthetics out- house and many more. While planning an outdoor landscape it mandatorily suggestive as to which trees to be planed around considering climatic soil geological, and aesthetical need of the structure such trees are grow.

Effective method, used cumulatively can solve the use for self- generation of electricity for the treetop structure as well as the entire outdoor landscape for that matter.

The International Energy Agency as stated in its journal how it figure on to make solar photovoltaic's & focused solar power contribute to 16 to 11% of worlds electrical energy production.

In addition to the tree design concept of solar treehouse the research also highlights numerical benefits on a city area basis a study of earlier use technique in a house olds is attached with some statistics of a model city followed. A two- dimensional graph & calculation approach leading to conventional beneficiaries is what take achieve. The practical usage is a broadly supportive to the theoretical presenting of energy production methods.
Design Procedure of Treehouse Solar

Here is a system of Anchor Fasteners and Girders, that shall be used thoroughly around the globe is the most tree & load friendly support device available

<table>
<thead>
<tr>
<th>Fasteners come in configuration as:</th>
<th>Large Trees</th>
<th>Medium Trees</th>
<th>Small trees</th>
</tr>
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<tbody>
<tr>
<td>750 cm or 20&quot; dia. &amp; can be mounted as a cantilever holds beams&gt;50000kg</td>
<td>30-50 cm or dia. 12&quot;-20&quot; supported beams on each side &amp; keep load down the center line 79500kg</td>
<td>22-26 cm or 9&quot;to14&quot; dia. specifically tailored</td>
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</tbody>
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Engineering /Design service are billed Provides actual load testing, periodic re-torque, lowest amount of tree tissue removal & cost for true load Supported.

For a case where a tree house or structural component on a tree is build as a image shows bellow & there is an arbitrary need for a rooftop solar to be fitted the following steps are followed.
1) A site visit to the treehouse & hence followed by its complete analysis.
2) Site arrestment Analyze the treetop or treehouse roof as with the help of google earth determine adequate sun exposure for energy rebate.
3) Once determined the above criteria measurement of the roof & help decide what size and area covering with which light capacity solar panels aptly suitable for the structure.

Types of Solar Panels
- Monocrystalline Silicon (Single Silicon)
- Polycrystalline Silicon (Multi-silicon)
- BIPV (Building Integrated Photovoltaics)

BIPV’s can look like real roofing tiles (solar shingles are an example). That’s nice, but good looks do cost a lot more.

1. Optional Banking and financing if not on spot affordable package of treetop solar available generating subsidy for electricity generated & a reward facility for conventional method using.

This makes idea of solar Treehouse attainable
- Built below trees center of gravity
- If possible let 2-3 trees share the load
- Use basic tools, hardware to puncture trees so they don’t destroy the nutritional value and its core strength.

Case Study for the Benefits of Pune City (Maharashtra, India)
Hardly observe in any areas in and around Pune not even 3% of the trees planted or existing are used for and conventional energy generating or regenerating purpose.

Closely the same is the case all over India where trees are not use for harnessing solar power at all where they are cut highest grasping agents of head from the sun.

According to the study relevant to the graphs above if treetop solar are installed on the no. of trees i.e. 24.26 lakh in Pune. A treetop can hold solar panel i.e. 20,000,000 solar panels of area 30,000 sq.ft i.e. a system of 5,800 kw i.e. 580MW; i.e. 2,11,700 MW-hr/year. Saves Rs. 19,53,00,000/year According to the calculation of energy economics it is enough suffice needs of 1074 institution all buildings electricity need saving up to 30,000,000 sq. ft. area of Pune city.
2. Advantages of Solar Treetops

1) A must and a need of environment.
2) Focuses on reduction of wastage of space that can be else used.
3) A very conventional stated methodology as for promotion of solar.
4) Associated with the long term benefits as has broad perspective of achieving energy goal as a substitute to outer harmful production method of electricity.
5) Saving of huge amounts of money possible on a yearly basis.
6) Less of maintenance required.
7) Can even make use of softened trees acquiring space in forest/hilly areas.
8) Beneficial in all sizes as per the size or the requirement of the vicinity.
9) Planned efforts can result in proper structural arrangements and safe energy harnessing at low cost investment of saving innumerable space.
10) Solar Power Tree House Provide independence.

3. Disadvantages of Solar Treetops

1) Easily combustible in accidental cases.
2) Needs a thorough investigation of the areas as to pass its criteria of so we live wires passing bye.
3) Need good structural strata with hefty tree branches.
4) Initial investment is huge amount but surely reaps timely *ROI and benefits.
5) Non-functional during gloomy month of the year.