

# Biomimicry: Mimicking Solar Energy Process Using Carbon Solar Lamp

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**Abstract:** Carbon solar lamp "comes under the topic "Biomimicry". Carbon solar lamp is an energy based system where solar energy process is totally reversed by mimicking sun and absorbing solar energy from it and thus converting it into electrical energy .where by giving minimum input of energy and trying to gain more output energy in this process by using carbon as the medium . Where carbon will be electrically charged to act as an incandescent bulb by forming an illusion of a mini sun where solar energy will be absorbed by the solar panel. Carbon arc foundation was built in a low cost manner for the sole reason to check its light intensity after verifying its results I concluded that it has more light intensity than CFL bulbs or led bulbs and then a solar panel was mounted above the carbon arc foundation to extract energy from the carbon arc process and to calculate the energy multi meter was used to formulate the results. And the results were - by giving minimum amount of voltage we can gain double the amount voltage in return .In my analysis i gave 12v and extracted 18 v of power and also I proceeded with by giving 6v and in return I got 12v of power. And it also proved that more number of photons were produced during mid-day than the sun produced in mid-day (when the light intensity is equal to 174 lux - 200 lux).

**Keywords:** Solar energy, Biomimicry photons.

## 1. Introduction

"CARBON SOLAR LAMP" comes under the topic "BIOMIMICRY". It literally means examination of nature, its models, systems, process, and elements to emulate or take inspiration from in order to solve human problems .The term biomimicry and biomimetics comes from the Greek god bios, meaning life and mimesis means to imitate. Other terms often used are bionics, bio inspiration and biognosis. This project is based on energy systems where solar energy process is totally reversed by mimicking sun (biomimicry process). Which means solar energy (infrared radiation and ultraviolet radiation ) is absorbed from the sun by using solar panel and converted into electrical energy and used how many purposes ( example - commercial purpose , industrial purpose etc). By passing electricity using carbon as the medium the carbon get excited and acts as incandescent bulb which forms and illusion of a mini sun and from the mini sun the solar panel which kept above the mini sun absorbs the solar energy (ultraviolet radiation and infrared radiation) which converts the solar energy into electrical energy. This process done by giving minimum input

and trying to gain more output. The before lines all states the short summary of the carbon solar lamps working and its process. The initial progress of the carbon solar lamp was basically done in an ordinary manner and it evolved in many ways and the first carbon solar panel has become great success in mimicking sun as you can see in the figure below. An illusion of a mini sun is perfectly displayed. The cost expenditure for the first carbon solar was Rs.1000 and all other products were taken from my house .But the final evolution cost was near Rs.5000 because of so many evaluation to make carbon solar lamp to its finest. And the carbon solar lamp became the finest example for biomimicry by mimicking the solar energy process and adding another skill to generate energy and also became capable of producing more photons in midday better than the sun produces photons in midday (the reason will be explained below).



Fig. 1. First carbon solar lamp

## 2. Guidelines

Solar energy works by capturing the sun's energy and turning

it into electricity for your home or business. Our sun is a natural nuclear reactor. It releases tiny packets of energy called photons, which travel the 93 million miles from the sun to Earth in about 8.5 minutes. Every hour, enough photons impact our planet to generate enough solar energy to theoretically satisfy global energy needs for an entire year. Currently photovoltaic power accounts for only five-tenths of one percent of the energy consumed in the United States. But solar technology is improving and the cost of going solar is dropping rapidly, so our ability to harness the sun's abundance of energy is on the rise. A 2017 report from the International Energy Agency shows that solar has become the world's fastest-growing source of power – marking the first time that solar energy's growth has surpassed that of all other fuels. In the coming years, we will all be enjoying the benefits of solar-generated electricity in one way or another.

*A. Working of solar panel*

When photons hit a solar cell, they knock electrons loose from their atoms. If conductors are attached to the positive and negative sides of a cell, it forms an electrical circuit. When electrons flow through such a circuit, they generate electricity. Multiple cells make up a solar panel, and multiple panels (modules) can be wired together to form a solar array. The more panels you can deploy, the more energy you can expect to generate.



Fig. 2. Carbon solar lamp

*B. Carbon solar lamp*

As you can see in the above picture that the Solar Energy process is totally reversed by using biomimicry process in here the mini sun is at the bottom and above the mini sun is the solar panel where the energy is absorbed and converted into electrical energy. In the original method the solar energy is directly absorbed from the Sun and converted into electrical energy by using solar panel but in carbon solar lamp the sun is mimicked by using carbon as the medium by passing electricity to the carbon the carbon is excited and act as an incandescent bulb which forms an illusion of a mini sun and from the Mini sun solar energy is absorbed by using solar panel and converting into electrical energy by using this method the inventor is trying to extract more energy by giving minimum energy of input

*C. Construction of carbon solar lamp*

*1) Creating outer structure for carbon solar lamp*

Welding technology is used to form the outer structure of

carbon solar lamp using welding process and tinger paste is applied and filing process is done for obtaining smooth surface and red-oxide is painted for prevention from rusting and above red-oxide original painting works are done and at the first floor of carbon solar lamp asbestos is placed for two purpose

- Non flammability
- Electrical resistance



Fig. 3. Construction of solar lamp

*D. Equations*

*1) Carbon arc process and assembly*

An arc lamp or arc light is a lamp that produces light by an electric arc (also called a voltaic arc). The carbon arc light, which consists of an arc between carbon electrodes in air this is called carbon arc process. This carbon arc is present in the first floor of carbon arc lamp. Above the carbon arc the solar panel is placed for absorbing solar energy and at the bottom a tray is placed for placing battery and at the top multimeter is placed for taking the reading of voltage and current and film roll is used to wrap around the carbon solar lamp for containing the carbon gas

*E. Working*

The carbon rods are electrically charged using a battery (6v or 12v) and thus the carbon rods will get excited and acts as an incandescent bulb .which forms an illusion of a mini sun from that mini sun the solar energy is collected by solar panel which placed above the mini sun which in turn converts solar energy into electrical energy and this electrical energy is measured using multimeter for the power calculation and also to get the vales of voltage and current

**3. Result**

The experimental result was in favorable state as expected by passing current to carbon rods the carbon atoms gets excited and produces numerous photons thus acting as an incandescent bulb with more light intensity. By supplying 12 voltage of input we can obtain 18 voltage of power and thus by supplying 6 voltage we can get 12 voltage double the amount of power. In the spectrum of sunlight, photons of different frequencies are there. The solar panel absorbs photons of only a particular frequency in midday (<200 lux), so that the solar panel produces 12.9V in 174 lux. This is due to most of the higher frequency wavelength couldn't reach the surface of the earth. So most of the energy is vanished up in the sky (in the

midday). But carbon solar lamp produces photons of wide range of frequency. Therefore, the panel can absorb all those photons and this enables the carbon solar lamp to produce an output of 17.9V at the same 174 lux. From the above point I confirm that at the midday at 174 lux carbon solar lamp produces more photons than the sun at the same.

#### **4. Conclusion**

As per the discussion I conclude that more energy can be extracted in carbon solar lamp in midday in an efficient way with solar panel.

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