



TESLA'S SOLAR POWER HARVESTER AND ITS APPLICATIONS

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Abstract:

In the Machinery routine human life, we are full and fully depended on machines and electricity. But the population of human race is increasing towards uncontrollability. So we don't have such a resource to give electricity to all human of earth and space stations. There is also a limited access of coal and petroleum and other resources. Sun and its rays are sustainable energy resources of world forever. Harvesting electricity from sun is old method but it's costlier. So we need to remember the forgotten invention of Nikola Tesla. He is already invented a world very cheapest solar panel but we refused to use.

Introduction:

The International Energy Agency projected in 2014 that under its "high renewable" scenario, by 2050, solar photovoltaic's and concentrated solar power would contribute about 16 and 11 percent, respectively worldwide electricity consumption and solar would be world's largest source of electricity. A Solar cell is a device that converts light into electric current using photovoltaic effect. The first solar cell is constructed by Charles Frittes. In 1873 Willoughby smith finds that selenium shows that it has photoconductive property. This is basement of solar cell invention. Then most advanced technologies coming to exist. Then the solar energy becomes complex and costliest technological advancement. We unable to answer the high cost problem. We need to rethink about the old forgotten inventions of Tesla. Photovoltaics are name of method of converting solar energy into direct current. This effect is operating principle of solar panels. The earth receives 174,000 Terawatts of incoming solar radiation at the upper atmosphere. Approximately 30% is reflected back to space while rest is absorbed by clouds, ocean and land mass. So we need method that absorbing the solar energy and other form of energy.

Electrical Magician Nikola Tesla:

Nikola Tesla was born in Croatia (then part of Austria-Hungary) on July 9, 1856, and died January 7, 1943. He was the electrical engineer who invented the AC (alternating current) induction motor, which made the universal transmission and distribution of electricity possible. Tesla began his studies in physics and mathematics at Graz Polytechnic, and then took philosophy at the University of Prague. He worked as an electrical engineer in Budapest, Hungary, and subsequently in France and Germany. In 1888 his discovery that a magnetic field could be made to rotate if two coils at right angles are supplied with AC current 90° out of phase made possible the invention of the AC induction motor. The major advantage of this motor being its brushless operation, which many at the time believed impossible. Tesla moved to the United States in 1884, where he worked for Thomas Edison who quickly became a rival – Edison being an advocate of the inferior DC power transmission system. During this time, Tesla was commissioned with the design of the AC generators installed at Niagara Falls. George Westinghouse purchased the patents to his induction motor, and made it the basis of the Westinghouse power system which still underlies the modern electrical power industry today. He also did notable research on high-voltage electricity and wireless

communication; at one point creating an earthquake which shook the ground for several miles around his New York laboratory. He also devised a system which anticipated world-wide wireless communications, fax machines, radar, radio-guided missiles and aircraft. But we had forgotten the research of Nikola Tesla Because of Politics. We still give all credits to Thomas Edison. Originally all credits to Tesla because we relayed every second on Tesla's AC Systems. Current Science proves that Using AC is safer comparing to DC.

Solar Energy Conversion:

Solar energy conversion is a process of conversion of direct sun light into more useful forms. This conversion occurs by the following mechanism.

1. Thermal Conversion
2. Photo Conversion

Thermal conversion means absorption of thermal energy in the form of IR Radiation. Solar energy also very important source for low temperature heat which is useful for heating building, water and refrigeration. Solar heat collectors consist of material like stones AND Bricks, which can absorb heat during the day time and release it slowly at night. Photo conversion involves conversion of light energy directly into electrical energy by photoelectric effect. When the energy of solar radiation falls on the surface of a metal, it is absorbed and used to excite and eject electrons from the surface. This ejected electrons moves in circuit and generate electricity. Photo galvanic cell is the one, which converts the solar energy directly into electrical energy. The basic principle involved in photo galvanic cell is when the solar rays falls on a two layer of semiconductor devices, a potential differences between the two layer is produced. This potential difference causes flow of electron and produce electricity. Photo galvanic cells consist of a p-type semiconductor and n-type semiconductor. They are in close contact with each other.

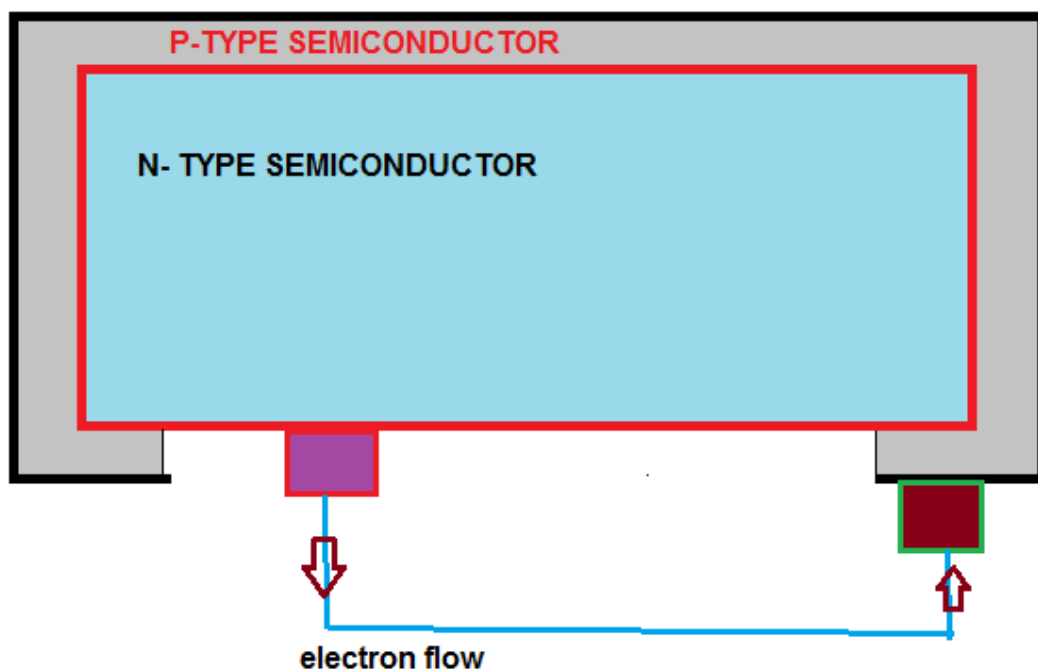


Figure (1): Simple Photo Galvanic Cell

When the solar rays falls on the top layer of the p-type semiconductor, the electrons from the valance band get promoted to the conduction band and cross p-n junction into n-type semiconductor. There by potential difference is created between two layer is created, which causes flow of electrons. Thus p and n layers are connected to an external circuit, electrons flow from n-layer to p-layer, and hence current is generated. The potential difference and hence current increases as more solar rays falls on the surface of the top layer.

Advantage and Disadvantage of Photo Galvanic Cell:

Photo galvanic cell can be used in isolated and remote areas and hills and forests. The maintenance cost is low and this is noise and pollution free and lifetime is long. But its capital cost is higher and storage of solar energy is not possible. It only produces DC Voltage. Solar energy is not available at night and rainy weather times.

Tesla's Solar Cell:

Tesla's Solar cell is different than photo galvanic cell but acting on same photoelectric effect but one difference is conventional solar panel consisting of a substrate coated with crystalline or amorphous silicon. It makes the panel as expensive.

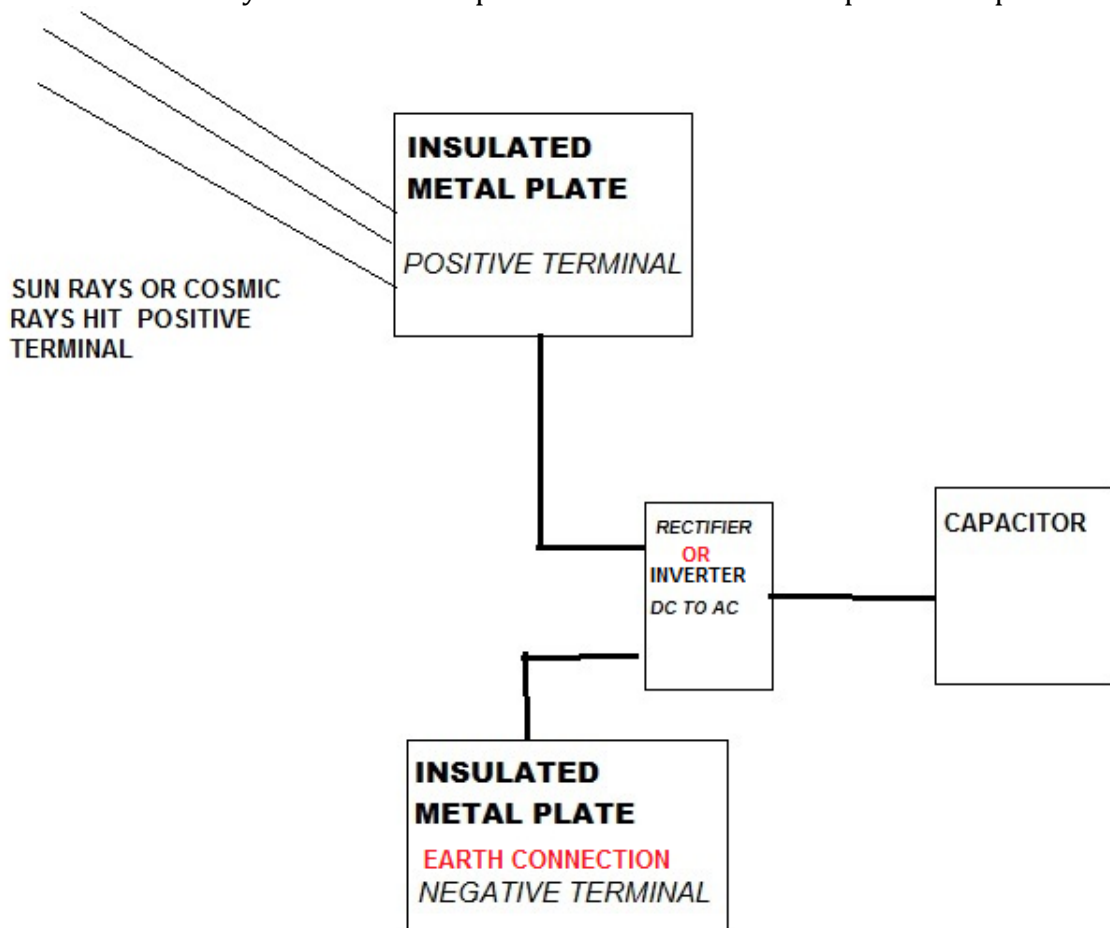


Figure (2): Tesla's Solar Panel

Stick one of these antenna-like panels up in the air, the higher the better, and wire it one side of a capacitor, the other going to a good earth ground. Now the energy from the sun is charging the capacitor and converts the obtained DC source by using the rectifier. This panel is not requires silicon or other expensive photoconductive materials. This type of Tesla's Solar panel requires two insulated metal panel and one high voltage storage capacitor and rectifier or inverter. This type of panel harvesting energy from sun and other sources of radiation. Tesla believed that the device is working in night

because of cosmic rays and neutrinos. Tesla also refers to the ground as a vast reservoir of negative energy. Tesla's intent was to capture the energy trapped between earth and its upper atmosphere and to transform it into an electrical current. Tesla pictured the sun as the immense ball of electricity, positively charged. The earth, in other hand, is charged with negative electricity. The positive particles are stopped at the ionosphere and between it and the negative charge in the ground, a distance 60 miles. The gases of atmosphere are act as an insulator between these two opposite charges. So our earth is acting like capacitor. The region between the ground and edge of space contain great amount of energy. Our device is used to harvest the energy of earth.

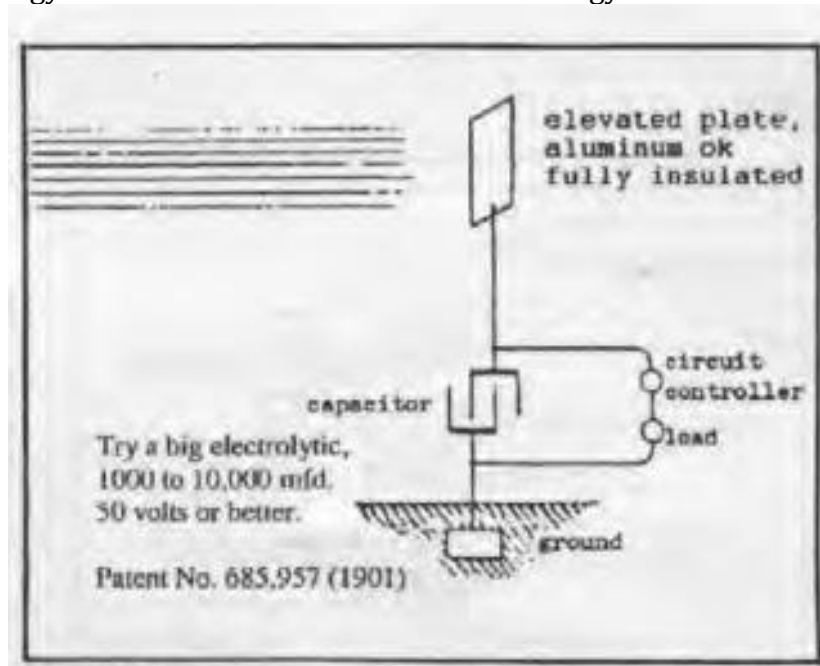


Figure (3): Tesla's Power Harvester

Advantage of Tesla's Solar Panel:

We can generate energy at night and the capital cost goes low and we can store the radiant energy. So we can harvest the power from sun and cosmic rays and lighting. It is very useful in producing current at very altitude. We can easily find which place is cosmic radiation rich by using the device. This also designed like concentrated solar panel.

Disadvantage of Tesla' Solar Panel:

In this device, we need to protect the insulated metal from water and chemical other corrosive properties of nature. This will be a biggest defect of Tesla's solar power harvester. In material science give us a biggest duty that protects the insulated metal plates.

Our Future Hopes:

We can establish a Tesla's solar power harvesting plants like solar panel plants. This is requires some acres to construct the plant. If this is possible we can harvest energy for 24 hours and 365 Days. Every people of earth know and use the technological advancement of science by having electricity. Cosmic radiation showers are absorbed and it is leaded to positive climate responsive in earth atmosphere. Every population of earth will get a right to own energy. That is our dream. Oil and Gas politics should get down. The future is present on our scientifically advancement toward ultimate energy production.

Conclusion:

In July 10 1932 Tesla's states "I have advanced theory of cosmic rays and at every step of my investigation I have found it completely justified. The advanced feature of cosmic rays is their constancy. If a plant is developed on their energy we do not need coal, oil and other fuels". Pollution free energy and constant energy is not so far. Future is strongly relayed on energy and nanotechnology and robotics. Constant Energy is our biggest dream. Till Science and engineering going toward this ultimate goal. This old device is small contribution for constant energy. Remembering the Nikola Tesla's Word "electricity present in unlimited quantities and can run drive the world's machinery without the need of coal, oil, gas or any other fuels".

References:

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2. U.S Patent No 685,958- Method of Utilizing Radiant energy
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