

# Indoor Power Generation by Vaseline Glass Plate Modulated Solar Photo-Voltaic Panel

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**Abstract:** Supplementing day to day energy requirement using renewable sources of energy is essential. However, highly fluctuating nature of renewable sources necessitates storage. Storage is expensive and has to be replaced periodically. In this project an innovative stand alone, indoor light system is proposed with minimum use of rechargeable battery by subjecting indoor light on the solar photo voltaic panel through the vaseline glass plate. The main system components comprise of a solar photovoltaic panel, Vaseline Glass Plate, CFL, current amplifier, choke, carbon resistance, rechargeable battery and lamps connected to grid supply.

**Keywords:** Vaseline glass plate, LED, Compact fluorescent lamp, Rechargeable battery, Sun's spectrum, yellow-green color Light & yellow light.

## Introduction:

Every house hold utilizing CFL or LED lamp in the range of 5 watt to 25 watt, to operate solar PV panel in day time we are radiating it towards the SS, but now a day's energy efficient solar PV panels (strips) are available in the market, which can generate indoor DC the power by radiating towards CFL or LED lamp [1-4]. The efficiency is less as compared to the sun's spectra but it will provide continuous power even at night. Traditionally by amplifying and ballast mechanism it will amplify up to certain extent. By the proposed invention VGP - antique piece is placed just above the solar PV panel, which generates Y-GCL light in day time and yellow light in night time, is used to increase the strength of incident radiations incident on solar PV panel as shown in figure 2. Also, solar energy distribution curve shows that green and yellow colors have highest intensity in solar and light spectrum [5].

## Chemical process:

VGP was produced in 1840 from uranium oxide known as Uranate. Uranate is ternary oxide which involves the elements of uranium in one of the oxidation states +4, +5 or +6. The uranates are of two types: Compound of exact composition and other synthesized by combination of metal oxides are found in yellow cake, the empirical formula  $M_xU_2O_7$ . For example, Barium diuranate  $BaU_2O_7$ ,  $UO_6$ , where octahedral units are joined by sharing edges forming infinite crystallographic chain [6]. The normal uranium color glass in the form of vaseline illuminates yellow or yellow-green colour depends on oxidation states and concentration of metal ions. In presence of UV light or lamp it fluorescence bright green colour also in the absence of light source with black background.

## Experimentation work:

In the daytime, indoor energy generated by the solar PV panel through Vaseline Glass Plate, The solar PV panel is placed just below household lamp such that full light radiations at night are allow to fall on the Vaseline Glass Plate, at day time generates Yellow-Green Light, is modulated by incident light radiations and finally modulated light is incident on solar PV panel, the DC power is efficiently greatened as compared to usual way and stored in rechargeable battery, which connected in parallel. However, in the night time, the light from CFL or LED Lamp is allowed to focus on the photovoltaic panel through Vaseline Glass Plate, which generates yellow colour light, The modulated light due to Vaseline Glass Plate and Incident radiation's is finally focused on solar PV plate, there by generating electricity in the night, using rechargeable battery output power variation is stabilized as well DC power is stored. This generated DC power is so sufficient that it will be switched ON another LED Lamp where all the LEDS are connected in parallel combination through carbon resistance at night time [7-10]. In this way, the photovoltaic panel is able to produce continues 24-hour electricity for the said application. The system can be adapted to serve different applications mobile charging, electric advertisement panels, street lights, Indicators, traffic information signal displays etc.

The Light or solar spectrum of visible light form of direct or reflected shows that the intense radiation comes from the visible light spectrum between 400 nm and 700 nm, showing yellow colour at the peak for intensity versus wave length values. Whereas uranium generates the same colors yellow to yellow green naturally in presence of sun light in day time as well as from light source at night on glass articles like Vaseline glass candlestick holders an antique piece, the same will show rich green colour at night in the form of source of Light seen as U.V. source. All though most pieces of uranium glass are considered to be harmless and only negligibly radioactive. This naturally generated from uranium yellow light helps to generate electricity from solar cell efficiently in presence of household light for indoor energy generation as we need to avoid battery storage and uninterrupted power from solar cell [11].

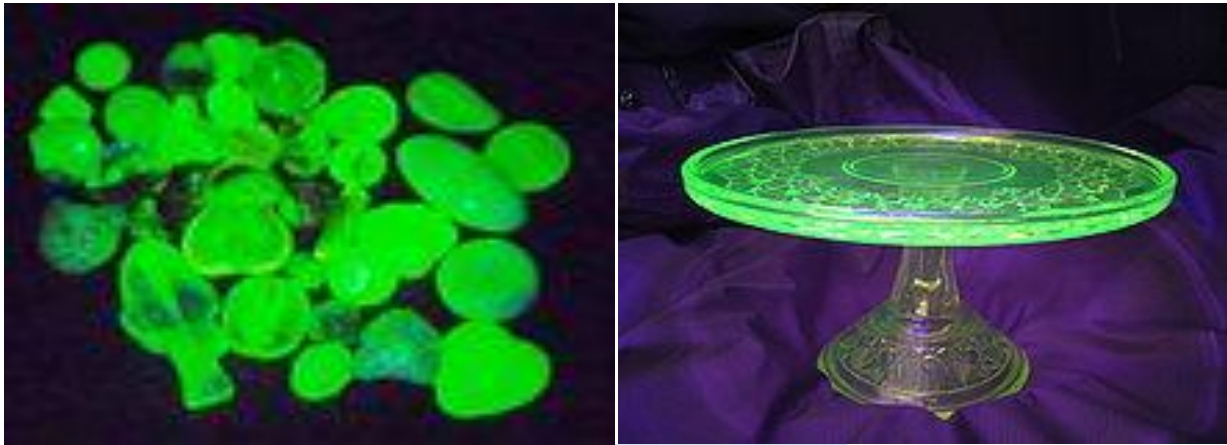


Figure 1: Vaseline glass plate

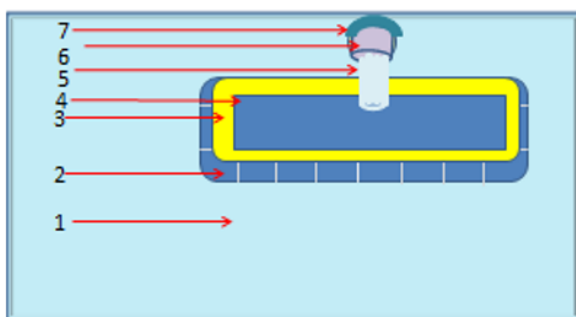
### Innovation

Connected assembly of solar cells form a photovoltaic module which is wired to adopt DC electrical supply, facing towards solar spectrum with battery and tracking mechanism commonly used for residential application, which is maximum rating up to 350 watts. The efficiency depends up on frequency of light, but it will not entirely be covered solar light specifically UV, Infrared & low diffused light source so there is variation in efficiency but monochromatic light like yellow or mixture of yellow-green light obtain from vaseline, will improve the efficiency at night time in presence of night light sources in residential buildings. if the panel 3 V, 250 mA of size 18"×12" is activated electrical lamp like LED (60 watt) or Compact fluorescent lamp (40 watt) by keeping the safe distance of about ½" will generate 2.8 V, 60-70 mA current, which is sufficient to run 8-10 LED'S particularly of white colour and a lamp of 10W will requires such maximum 30 LEDES to operate its full value. which means that if we increased the size of the panel 3times than the above mention rating then 10 watt lamp will operate from 60Watt LED or 40 watt CFL lamp. This directly means that, two 20 watt Lamps of CFL or three 20 watts lamps of LED'S can easily run 1 LED, 10 watt lamp for residential application. Instead of using 2 CFL, 3 LED lamps or large size of panel which will work at low efficiency we have to improve the intensity of incident radiations for indoor energy generation system, no doughty we can use the panel in semicircular form for uniform incidence of light, current amplifier as well as choke to improve the efficiency of system [12-15].

To improve the intensity of incident radiations LED or CFL lamp radiations are applied through thin Vaseline Glass plate to the solar PV panel for indoor energy generation system. For energy generation application Vaseline glass material is 2% of Uranium uranate in the metals like Li, Na, K, Ca, Sr & Ba to generate highly intense yellow colour glass plate, The intensity depends up on the type of oxidation carried out during oxidation reaction [16]. In presence of LED or CFL lamps it will show bright yellow colour whereas in presence of Sun light it shines as bright yellow-green colour, even in dark it turns bright fluorescent green, The monochromatic yellow or the combination of minimum yellow-green colors of course generate amplified energy level of the panel, which is sufficient to avoided either current amplifier or choke or large size panel At higher intensity of colour we can operate 1lamp from the other in case of indoor solar PV cells.

### Experimental set up:

Solar PV Panel Efficiently working under the influence of Vaseline Glass Plate.



- 1] Wall of the house : CFL lamp fitted on the wall
- 2] Solar cell : 6 volt, 300 mA
- 3] Vaseline glass plate: 2 % to 25 % Ur doped glass film
- 4] Visible to UV : Phosphors composed of  $Y_2SiO_5$  doped with praseodymium, galodium and lithium
- 5] CFL cell :15 to 20 watt
- 6] Angle holder : 5 amp, 230 volt rating

Figure 2: Mounting of Vaseline glass below the CFL

### Working:

At night time when CFL or LED light is switched ON, the light generates brightness in the room, which acts as radiating or reflecting source composed of three basic colors say RED (R), Blue (B) and GREEN (G), the brightness is arithmetic means of these colors [17-18].

When the light is incident on the solar PV panel it generates potential difference up to 2.8 V and hence current flows through the circuit of the order of 34 mA, this current level is increased to its approximately double by Tr. BC148, transistor amplifier, which works at 2.8V and 12 mA, due to the fact that the current value is 1.5 times (= 45 mA) generated by solar PV system and finally it

can be step up transformer or by an electronic ballast it will raised 45 mA to 65mA-70 mA maximum, hence to double the value we need to go through the above mention processes, At night time the same panel facing the lamp as shown in figure 1, more power will be boost up in presence of Vaseline Glass Plate, which provides transmitted type monochromatic yellow colour radiations to the solar PV system [19-24].

VGP is placed just above the solar PV panel, which will generate approximately 2.8V with 95 mA current, which is sufficient to drive 30 white lamps connected in parallel in the form of LED Lamp by this invention one light can used to drive another lamp. By this invention the additional boost up of power can easily done by passing light through the Vaseline Glass plate (VGP) on the solar PV system.in day time sun radiation are directly or indirectly incident on the solar PV panel through the VGP in the form of bright yellow-green colour leads to generates some amount power for indoor system i. e. less than night time, depends upon radiation incident.

Sometimes the same mechanism is directly facing the Sun Radiation's (SR) to get more power in day time by robotically operated arm or by simple mechanically operating device [25-27].

In overall system at the output of solar PV panel rechargeable battery or rechargeable cells are connected in parallel to stabilize the output power as well acts as storage device. In optional case when light is switched OFF at night time, battery will provide power for certain time duration.

### Importance of VGP:

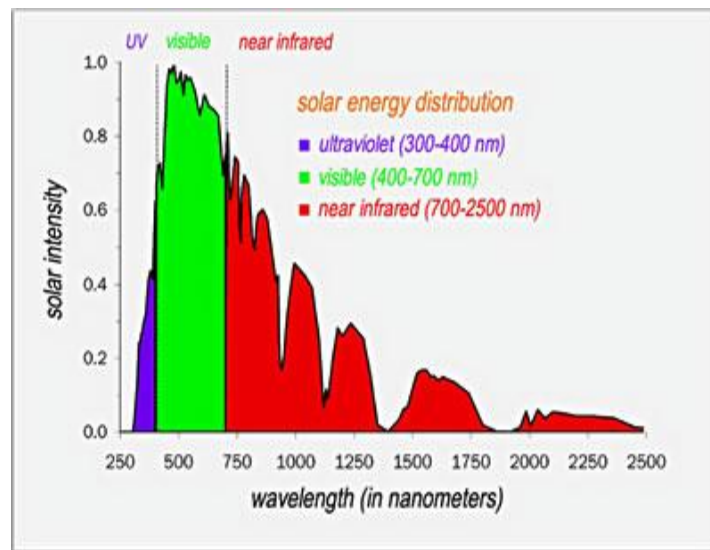


Figure 3: Solar energy distribution curve

Figure 3 explain solar energy distribution curve. The green colour shows highest intensity along the visible region i. e. from 400-700 nm. Also, through the VGP we are radiating yellow-green day time and only yellow colour radiation at night time which means we are superimposing incident radiations from light or sun with the radiation of VGP hence the incident radiations are supplied in modulated form of solar PV system, the light is thus amplified at the radiating end. The radiation energy will also be increased by 10% more if we radiate UV radiations on the VGP in presence of light radiations on it and bright ness is obtained in the form of bright green colour [28, 29].

### Aberrations:

Vaseline Glass Plate (VGP)  
Light Emitting Diode (LED)  
Compact Fluorescent Lamp (CFL)  
Rechargeable Battery (RB)  
Sun's Spectrum (SS)  
Yellow-Green Color Light (Y-GCL)  
Yellow Light (YL)



### Conclusion:

The pieces of uranium glass are found to be negligibly radioactive and harmless.

Although the efficiency of solar panel is from 18 to 20%, due to vaseline glass material covered solar panel the efficiency is increased by 10% theoretically, therefore practical efficiency is 23 to 24%.

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