AUREUS Project Theoretical & Experimental Calculation

Intensity of total energy from sun= 1360 W/m2

29% Reflects to space.

Total Energy 23% atmosphere

48% reaching to earth.

Total energy reaching to earth surface = 1360 × 48 ÷ 100 = 653.28 W/m2

Approximate 4% of sun energy intensity is UV light intensity = 653.28 × 4 ÷ 100

= 26.1312 W/m2

energy absorbed per m2 = 26.1312 W/m2

:: If we take the AUREUS clad (substrate made by tomato dye Lycopersicum Esculentum) efficiency 100% than –

energy absorbed per m2 = 26.1312 W/m2

Solar panel (Photoelectric cell strips) total efficiency= 22%

(So, it converts 22% of light to electricity)

˳˚˳ Power= Intensity × Area

Power for 1m2 = 26.1312 × 1= 26.1312 watt

Electrical Energy= Power × Time

= 26.1312 × 1= 26.1312 watthour

(For 1 m2 ) per day electrical energy = 26.1312 × 24

= 627.1488 watthour

: Due to approximate efficiency of household solar panel is 18% :-

Remain electrical energy= 627.1488 × 18 ÷100

= 112.8938 watthour

Power for 3 × 2 feet2 sheet= 112.8938×6÷10.7584

= 62.9613 W/feet2

# Conversion to mahof power :-

Power of watt hour= electrical energy × voltage ÷ 1000 (˳˚˳voltage= 5 , electrical energy in mah)

Electrical energy =62.9613 × 1000 ÷ 5

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| Electrical energy = 12,592.2635 mah |

**12,592.2635 mah amount of electrical energy waste per 3\*2 feet2 area .**

According to experimental data we know AUREUS clad having 80% absorbing efficiency approximate.

Aureus clad (tomato dye) absorbed 80% UV light energy absorbed per m2 = 26.1312 \*80/100

=20.9049 W/m2

Solar (Photoelectric cell strips) total efficiency= 18%

˳˚˳ Power= Intensity × Area

Power for 1m2 = 20.9049 × 1= 20.9049 watt

Electrical Energy= Power × Time

= 20.9049 × 24= 501.7176 watthour

(For 1m2 ) per day electrical energy= 501.7176 watthour

Solar (Photoelectric cell strips) total efficiency= 18%

Due to 18% efficiency of solar panel. (So, it convert 18% of light to electricity)

Remain electrical energy= 501.7176 ×18 ÷ 100

=90.309168 watthour

Power for 3 × 2 feet2 sheet= 110.3778 × 6 ÷ 10.7584

= 50.3657 W/feet2

# Conversion of mah of power :-

Power of watt hour= mah ×voltage÷1000 (˳˚˳voltage= 5)

Electrical energy =50.3657×1000÷5

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| Electrical energy = 10,073.1522mah |

**So, we get 10,073.1522 mah electrical energy**.