

Green Campus Initiative

200KWp Roof Top Grid Tied Solar Power Plant

As part of Green Campus Initiative Vasavi College of Engineering has initially commissioned 200kWp rooftop grid tied fixed tilt solar power plant in the campus with the support of Electrical and Electronics Engineering department in the year 2014. The Vasavi college of Engineering has five buildings namely Viswesrayya block, Ramanujam block, C.V. Raman block, Sarvepalli Radha Krishnan block and Jagdish Chandra Bose block. The rooftop solar PV plant was erected on J.C.Bose block and Viswesrayya block. A 41.53 Sq.mt area is available on J.C.Bose block on which 125 Kwp SPV Installed and a 25 Sq.mt area is available on Viswesrayya block on which 75 Kwp SPV installed.

Diesel generator sets of 625 kVA, 500 kVA and 125 kVA capacities are providing backup power. Load can be met by either 625 kVA DG set or 500 kVA DG set. A diesel generator of 125 kVA capacity is used to meet the load during holidays and for street lighting. Prior to the installation of 200kWp SPV, diesel generators are run to meet the load during the scheduled and unscheduled outages of the state electricity supply. The operation of these generators is not free from pollution.

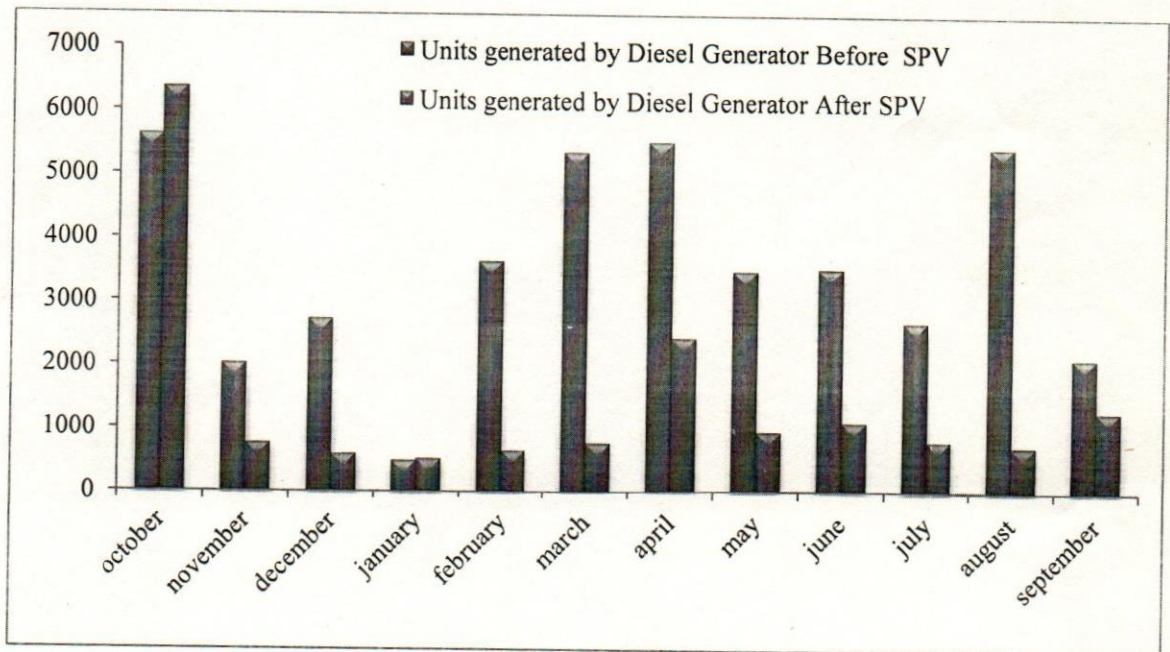


Fig.1. Diesel units generated before and after SPV installation

After the installation of solar PV Power generation, the diesel generators were operated only when there is a failure on grid to meet the load that is in excess to the solar power generation. This reduced operation time and number of units produced by the diesel generators. Thus the total diesel consumption has decreased considerably.

Installation of 200KWP solar PV Power generation also resulted in a substantial saving of the energy charges per month. Also the power generated during holidays, Sundays and excess power during working days is fed into the National Grid.

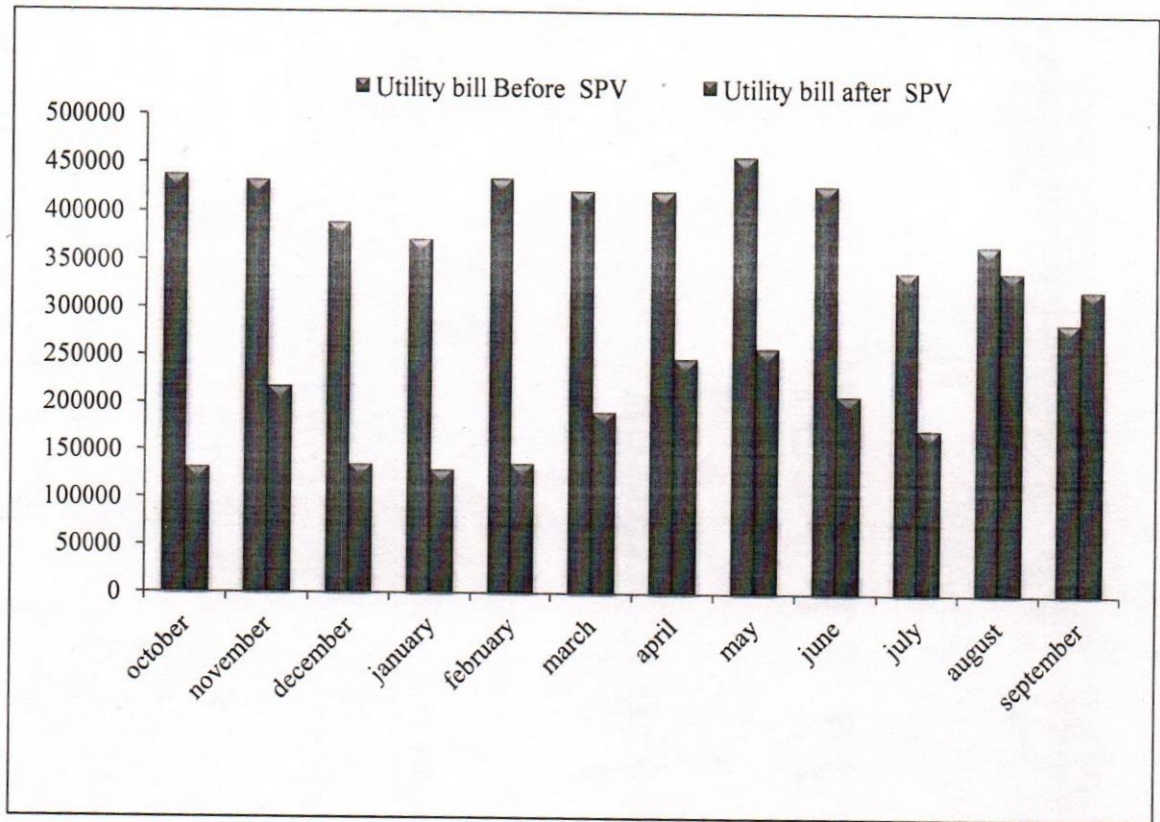


Fig.2. Utility bill (in INR) before and after SPV installation

The following table shows the Energy requirement met by the 200KWP Solar plant year wise from the installation.

| Year | Energy requirement of the college (kWh) | Energy requirement met by Solar (kWh) | %Energy requirement met by Solar |
|---------|---|--|----------------------------------|
| 2014-15 | 444993 | 223548 | 50.24 |
| 2015-16 | 575268 | 294701 | 51.23 |
| 2016-17 | 526954 | 272237 | 51.66 |
| 2017-18 | 599202 | 273959 | 45.72 |
| 2018-19 | 652093 | 280724 | 43.04 |

With the experience gained from the 200kWp plant, another 160 kWp grid tied fixed tilt Solar Power plant is proposed for installation on Ramanujam block, Pendekanti Institute of Management (PIM) block and Sarvepalli Radha Krishnan block to cater energy needs of the institute from time to time.

The 200kWp solar power plant generates approximately 269033 units of electrical energy annually that is equivalent to reduction in 300 Tons of CO2 emission approximately. A true green initiative by Electrical and Electronics Engineering department and by the college.

Reference: "Design, erection, testing and commissioning of 200Kwp rooftop grid tied solar photovoltaic system at Vasavi College of engineering". Dr.M.Chakravarthy, K.V.Ramanamurthy, B.Neelima Devi. Conference: 2015 IEEE IAS Joint Industrial and Commercial Power Systems / Petroleum and Chemical Industry Conference (ICPSPCIC), DOI: [10.1109/CICPS.2015.7974067](https://doi.org/10.1109/CICPS.2015.7974067)