

A Project Report on,
“INSTALLATION AND STUDY OF STANDALONE HYBRID
GRID
(INVOLVING SOLAR AND BIODIESEL BASED
GENERATION)”

*Submitted In Partial Fulfillment of The Requirements For The Award of
Degree of Bachelor of Engineering in Electrical & Electronics Engineering*

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ABSTRACT

Uninterrupted energy is one of the major inputs for the economical development of any country. Coal and other fossil fuels which have taken 3 million years to form, are likely to deplete soon. For sustainable power we need to use renewable energy resources. Renewable energy is obtained from sources that are essentially inexhaustible. It includes wind power, solar, geothermal etc. Most important feature of Renewable Energy is that it is very clean and does not pollute the environment. This project is mainly based on the usage of solar and biodiesel. The energy available from these sources are integrated to obtain sustainable power.

Hybrid Energy System is an excellent solution for electrification of remote rural areas wherein grid extension is not possible or maybe not economical or can also be used as “A cost efficient self sustained standalone grid”, incorporating combination of two or more Renewable Energies, supplying Energy Requirement. This project deals with the use of biodiesel as a source of electrical power. The performance of the same will be studied as standalone system and then integrating with energy produced by solar, wind and biogas to form hybrid grid. An attempt is made here to show that how variable energy could be made more sustainable. This also highlights the use of locally available energy sources for the immediate energy needs in the locality.

An attempt is made here to demonstrate the use of biodiesel as convenient fuel to run a kerosene engine which is coupled to an alternator to generate power in the locality to meet the immediate power requirement. An exhaustive experimentation is carried out by preparing the biodiesel from castor oil in the lab to study and analyze the performance of an engine fed by biodiesel blended with kerosene.