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# A Review on Energy Audit of Solar Integrated with On-Grid System

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**ABSTRACT:** This review paper involves the study in various components of on-grid connected in solar system, and their working. A case study on the on the 'on-grid solar system' project Asia at one of the education institutes named 'Mahatma Gandhi Mission Polytechnic'. In electrical power system are normal on demands of side management for on-grid integrated with a renewable energy source. this paper present and exploration of the grid tied inverter (50-5000kw) source of energy like solar panel / solar photo volate modules, Net meter to net metering excess electricity fed into your electric utility grid. Mounting structure is to the support structure to hold the solar PV panel balance of system to consists of array junction boxes ABCD tracking system. If we required earthing system, circuit breaker and fuses.

**KEYWORDS:** On-grid, solar, panel, Electricity

## I. INTRODUCTION

Solar grid in a network that allows substantial access of photovoltaic energy to the national utility. This is an important technology because the integration of standardized PV system into on-grids optimizes the building energy balance, improves the economics of the PV system, reduces operational costs and provides additional value to customers and utility. Solar on-grid integration is a common practice in many countries around the world; there is a growing demand for alternative clean energy compared to fossil fuels.

## II. LITERATURE SURVEY

B. Pakkiraiah and G.D. Sukumar. Research survey on various MPPT performance issue improve the solar system efficiency Journal of solar energy in2016

J.N. Bharothu, M. Sridhar and R.S. Rao. "A Literature survey report on smart Grid technologies,"2014 international conference on Smart electric Grid (ISEG), 2014, pp.1-8, doi:10.1109

M. Hashmi, S. Hannia and k. maki, "survey of smart grid concept, architecture, and technological demonstrations worldwide,"2011 IEEE PES CONFEANCE on Innovative smart grid technologies (ISGT Latin America (2011), pp.1-7.

I.Panhwar, A.R. Sahito, and S. Dursun," Designing off -grid and on-grid renewable energy system using HOMER. Pro software" journal of international environmental application and science, VOL.12, no.4, PP.270-276, 2017.

T.F. Garrity", innovation and trends for future electric power systems", power systems conference, 2009.PSC'09, (2009), pp.1-8



III. PROPOSED SYSTEM DEVELOPEMENT

**Working of solar integrated with on-grid:** On -grid solar power system is a solar power generation system where it is connected to the utility grid. The solar panel convert sunlight to electrical energy i.e., direct current, and it is connected to inverter, the inverter takes direct current from PV array and convert it into alternating current. And this current sends into electrical counter i.e., Net meter and net meter Is a system that gives solar energy owner credits for the power that they add to the grid. When solar panels produce excess power, that power is send to the grid. and this power can be taken back when the solar plants are not functioning.

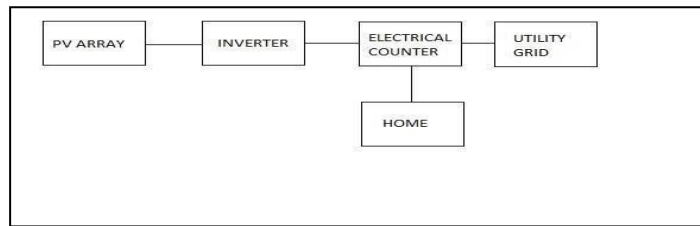


Fig.1: block diagram of solar integrated with on-grid system

Circuit diagram:

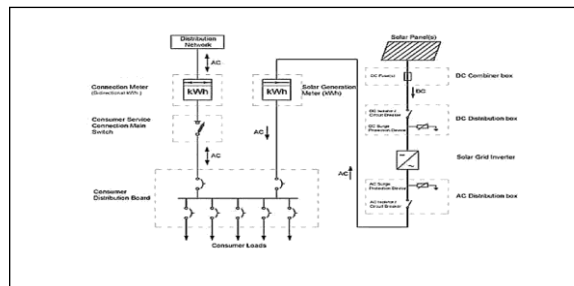


Fig.2:solar integrated with on-grid system

When solar panel convert sunlight into electrical semiconductor and gives the direct current (DC). current i.e., DC this current send to the solar grid inverter and inverter convert direct current into alternative current and this current send to ACDB (Alternative converter distributing box) and it directly send to load, load consume energy and extra current sends to utility grid. 5.Image of solar on- grid.

Image of solar on- grid system

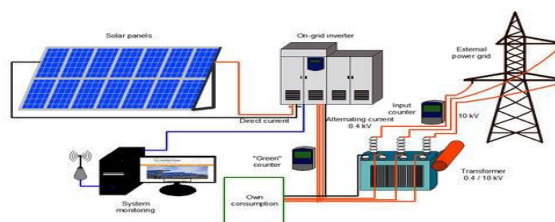


Fig.3:solar integrated with on-grid system



**RELATED WORK:**

Brief introduction of different modules used in us Projects in given below.

**Solar Panel:**

The solar panel important module in on grid system.it is work as sunlight (solar panel) converts into electrical energy with the help of semiconductor and gives the direct current (DC).



Fig.4: Solar Panel

**Net Meter:**



Fig.5: Net Meter

Net meter is a mechanism which allows domestic or commercial users who generate their own electricity using solar panels or photovoltaic to export their surplus energy black to the grid

**Inverter:**



Fig.6: Inverter

The inverter is mainly used in on grid solar integrated.it is convert direct current into alternating current, it is also called as on grid system which is work on without battery

**Balance of System:**

- Fuse: the fuse breaks the circuit if a fault in an application cause too much current to flow
- Circuit breaker: a circuit breaker is an electrical switch designed to protect an electrical circuit from damage caused by over or short circuit
- Cable: electrical cables are used to connect two or more than two devices
- Array Junction: array junction collects DC power from PV strings with blocking diodes on each string for protecting panels from reverse current flow



## RESULTS

Our project solar system using integrated with on-grid system, it is help to save the energy and also the electrical bill. it is renewable energy source that's way there is no harm.

## IV.CONCLUSION

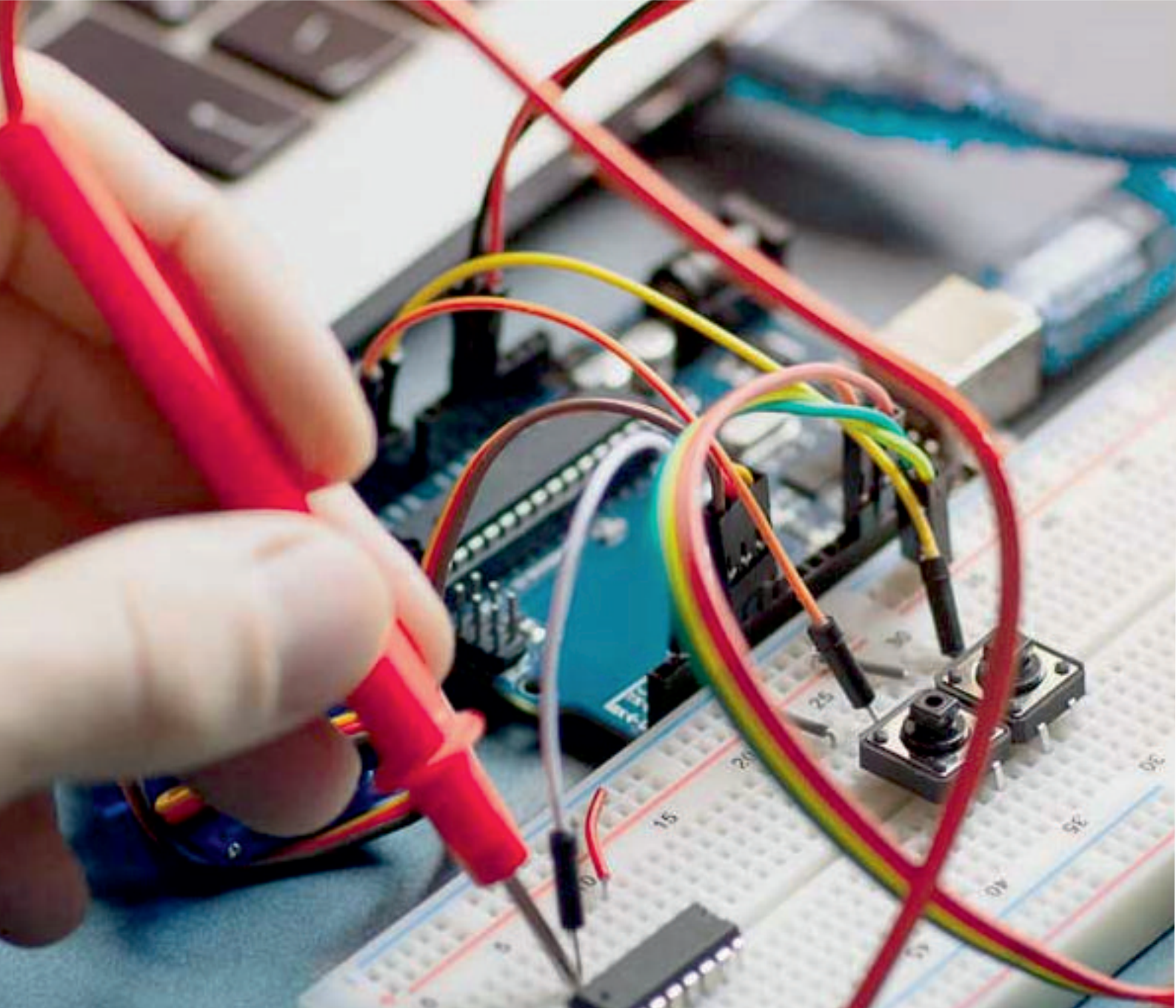
Every component has been reasoned out in we presence each are placed very carefully. We have to successfully complete our project and work on “Energy audit of solar integrated with on-grid system”. When we used this system, so we can save the electricity with the help grids. We can generate electricity with the help of on grid solar integrated system. We are uses to on grid solar integrated system we mainly use to reduced electricity bill.

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