International Journal of Interdisciplinary Innovative Research & Development (IJIIRD)

ISSN: 2456-236X

Vol. 01 Issue 02 | April-2017

REVIEW ON SOLAR-BIOMASS CROSSBREED POWER GENRATION AT AGRESTIC AREA

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ABSTRACT

Power is most basal need to bareness and social advancement. The population of India is grow day by day and is about 1.34 billion people. The India is second most populous country in the world these shows that 17.85% of the world's population. So with growing population load claims also grow and at agrestic areas still electricity had not arrived. The solution of this problem has overcome with using solar and biomass hybrid power plant. Maximum power plants are made with fossil fuels also these are very expensive and also the disadvantage of these techniques is helps to create the environmental pollution. India is on basis of agriculture so there is the large potential of biomass and also best possibility of solar energy. At the agrestic area there is big problem of load-shading and also biomass is easily available in that area and also material required is easily available. Also this gives continuous production of electricity at rainy season too. So, the solar-biomass hybrid power generation technology is best to provide electricity at agrestic areas in India.

Keywords:-Solar-Biomass, hybrid, power, Agrestic area.

Introduction:-

The potential for biomass boilers in India is vast with over 370 million tons of biomass being produced each year. Biomass is accessible from agricultural wastes material, direct harvesting and as a by-product from industries such as rice mills, sugar mills and saw mills. However, due to problems with infrastructure and the seasonal changeability of biomass in India, consumers are struggling to obtain a consistent fuel supply [1]. The solar energy is an intermittent nature of source. Integration of single source plants like combined cycle plants increase the overall energy conversion efficiency but it would not address the scarcity of fuel especially for seasonal available fuels [2] and [3]. Similarly the maximum limit for behaviour of solar thermal based power plant also limited to some extent [4]. Hybridization of solar thermal with biomass combustion complements each and every other, both seasonally and diurnally, to overcome their individual drawbacks and results continuous and uniform supply [5]. The rays of sun can be harness by solar collectors and biomass feedstock can be burnt as a supplementary fuel to achieve constant base load operation. Hybrid power system has a great future due to its more elasticity in operation. Research and improvement efforts in solar, biomass, and other renewable energy technologies are required to continue for, improving their performance, establishing techniques for accurately predicting their output and reliably integrating them with other conventional generating sources [6].

Biomass:-Biomass is a renewable energy resource derived from tire carbonaceous waste of different human and natural activities. It is obtained from numerous source, including the by products from the timber industry, agriculture crops, raw material from the forest, major parts of household waste and wood. It is a biological

material obtained from living, or recently living organisms. Biomass can also be use to other usable forms of energy like methane gas or transportation fuels like ethanol and biodiesel [52].

Sr. No.	Product Name	Biomass(KT/Yr)	Power Generation(MWe)
1	Paddy	37500	4400
2	Cotton	25000	3600
3	Wheat	24000	3200
4	Coconut	6000	900
5	Maize	5500	890
6	Banana	4000	500
7	Jowar	4000	500
8	Soyabean	2750	300
9	Bajra	2750	300
10	Rapseed	2600	275
11	Ground nut	2500	300

Table 1:- Annual production of biomass and power

Solar Power:-

The solar energy is an intermittent type of source. Integration of single source plants like combined cycle plants develop the overall energy conversion efficiency but it would not address the scarcity of fuel special for seasonal available fuels. Similarly the maximum limit for behaviour of solar thermal based power plant also limited to some extend. Hybridization of solar thermal with biomass combustion complements each other, both seasonally and diurnally, to overcome their individual drawbacks and results continuous and uniform supply.

MONTH	SOLAR RADIATION (kwh/m^2/day)	POWER GENERATION (kwh/month)
January	4.38	434.50
February	5.21	466.82
March	5.80	575.36
April	5.92	568.32
May	5.68	563.46
June	5.81	557.76
July	5.51	546.59
August	5.44	539.65
September	5.44	522.24
October	4.66	462.27
November	4.17	400.32
December	4.00	396.80
YEARLY TOTAL	62.02	6034.08

Table 2:-Annually availability of solar energy and power generation

Annually production of biomass and how many electricity is produce from them this shown in table 1. Among all the products paddy gives more biomass production which generates more electricity. Annually availability of solar energy and power generation is given in table 2. The intensity of solar radiation is more in February to September and also power is greater in this duration.

The variation in power generation capacity of different power plants according to February 2017 [53**].**

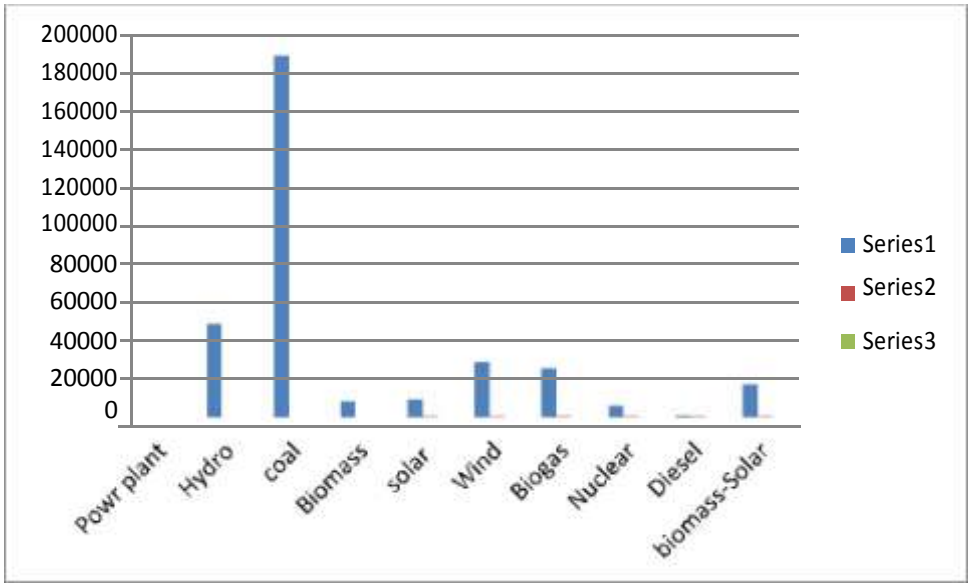

Fig.1:-power generation difference in different power plants

CONCLUSION:-

The first aim to make this paper is that it can directly applicable at agrestic area, farming areas, village areas. The capacity of these plant is between the range of 2MW to 10MW for small power plant, so it can directly applicable to agrestic areas. This plant is pollution free as we use biomass and solar to generate electricity so they are not produce harmful substances during production. Raw material required are easy available and these are not costly. The per unit cost of these power is also less and its lifetime is more that is it gives continuous power production at rainy and cloudy days.

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