

# Application of Biomass In Indian Scenario And Power Generation From Biomass

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**Abstract-** Now a day Carbon emission is most popular topic for debate. According to Environment Protection Agency 's survey which is taken in 2015 the amount Carbon emission gas is 6587 Million Metric Tons. Everyone is worry about increasing rate of rise of carbon emission. Nowadays farmer not get good profit of his crop, is the big issue in front of Indian government. Also Waste management is become highlighting issue in front of world. In this paper we discussed and solve this carbon emission and farmer's issue by Energy generation using biomass.

**Index Terms:** RURAL ENTREPRENEURSHIP, BIODIESEL, BIOFULE, BIOGAS, BIOMASS MOBILE APPLICATION, MNRE.

## 1.Introduction

Biomass has always been an important renewable source for the country considering the benefits and promises it offers. It is a carbon neutral fuel source for the generation of electricity, and apart from providing the much needed relief from power shortages, biomass power projects could generate employment in rural areas. About 32% of the total primary energy use in the country is derived from biomass and more than 70% of the country's population depends upon it for their energy needs. The Ministry of New and Renewable Energy (MNRE), Government of India has realized the potential and role of biomass energy in the Indian context and has initiated a number of programmes for the promotion of efficient biomass conversion technologies to be used in various sectors of the economy. Considering the present status of biomass based power generation and thermal applications, it is expected that only about 30-35 million tonnes of surplus biomass is being used annually for the existing and ongoing biomass projects According to the Biomass Resource Atlas (2002-04) prepared

by the Indian Institute of Science, Bangalore, more than 300 districts in India have biomass potential between 10-100 MW.

## 2. Present scenario of Indian Power Grid

State Wise Biomass Power Generation Projects		
Sr. No.	State	Capacity (MW)
1.	Maharashtra	1112.78
2.	Uttar Pradesh	936.70
3.	Karnataka	737.28
4.	Tamil Nadu	662.30
5.	Andhra Pradesh	389.75
6.	Chhattisgarh	264.90
7.	Panjab	140.50
8.	Rajasthan	111.30
9.	Gujrat	55.90
10.	Haryana	52.30
11.	Bihar	43.42
12.	Madhya Pradesh	36.00
13.	Uttarakhand	30.00
14.	West Bengal	26.00
15.	Odisha	20.00
<b>Total</b>		<b>4761.00</b>

Non-Reliable biomass supply chain. This is because of the wide range in its physical properties and fluctuation in availability round the year depending on cropping patterns Biomass from agriculture is available only for a short period after its harvesting, which can stretch only for 2-3 months in a year. So there is a need to have robust

institutional and market mechanism for efficient procurement of the required quantity of biomass, within this stipulated short time, and safe storage till it is finally used.

Major barriers (i) inadequate information on biomass availability, (ii) absence of organized formal biomass markets (iii) problems associated with management of biomass collection, transportation, processing and storage, problems associated with setting up large size biomass plants, (iv) non availability of cost effective sub megawatt systems for Fig conversion of biomass to energy in a decentralized manner, Pro and (v) lack of capability to generate bankable projects on Bio account of financial and liquidity problems, etc.

The major challenge in ensuring sustained biomass supply at reasonable prices are: Increasing competing usage of biomass resources, leading to higher opportunity costs bur unorganized nature of biomass market, which is characterized Bio by lack of mechanization in agriculture sector, defragmented land holdings, and vast number of small or marginal farmers. Another major challenge is the cost of biomass storage and transportation to power plants, which is consistently rising rapidly with time.

There is the need to evolve a robust organized biomass market through innovative business models, motivating rural entrepreneurs to take up the responsibility of supplying biomass to processing facilities There is also the need to develop and exploit energy plantations to take up energy crops on marginal and degraded land, as a substitute for crop wastes.

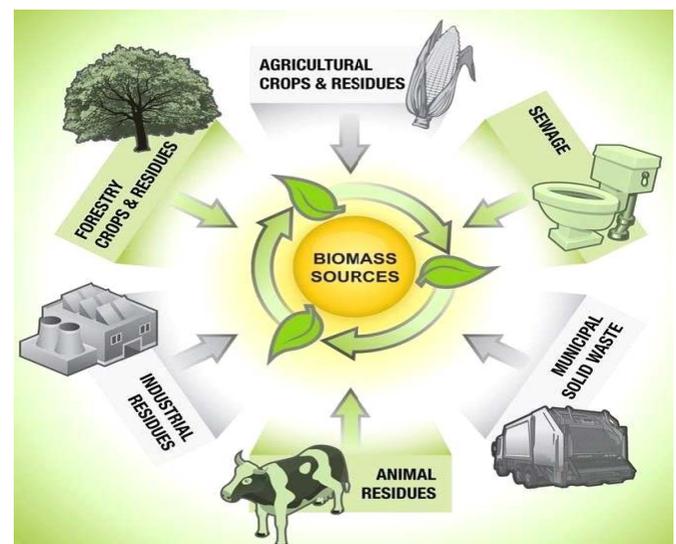
Some of the Indian states leading the pack in establishing biomass based power supply are Uttar Pradesh, Maharashtra, Karnataka, Andhra Pradesh, Tamil Nadu, and Chhattisgarh Ironically, many states with agriculture based economy despite good biomass power potential, have not properly been able to utilize the opportunity and figure low in biomass power achievements. Only Uttar Pradesh in north India has utilized large part of the biomass potential, which can be attributed to its sugarcane industry, with

cogeneration power plants. There is also wide variation in tariff being offered for biomass power plants in different states. Government policy can play a big role in enhancing the viability of biomass power plants and in supporting investment growth in the biomass power sector in states with high biomass power potential.

### 3.What is The Biomass

Biomass can be transformed into clean energy and/or fuels by a variety of technologies, ranging from conventional combustion process to advanced biofuels technology. Besides recovery of substantial energy, these technologies can lead to a substantial reduction in the overall biomass waste quantities requiring final disposal, which can be better managed for safe disposal in a controlled manner while meeting the pollution control standards.

Biomass conversion systems reduces greenhouse gas emissions in two ways. Heat and electrical energy is generated which reduces the dependence on power plants based on fossil fuels. The greenhouse gas emissions are significantly reduced by preventing methane emissions from decaying biomass. Moreover, biomass energy plants are highly efficient in harnessing the untapped sources of energy from biomass resources and helpful in development of rural areas.



**Fig. Sources of Biomass.**

#### 4. Why Biomass is needed?

Biomass Plant emits Carbon Emission which is less than Coal fired power plant.

Due to presence of biomass plant, no question is arising of waste management.

If a Biomass plant is coming out, then farmer get new market for sold his agriculture waste.

It is 100% renewable source based power plant.

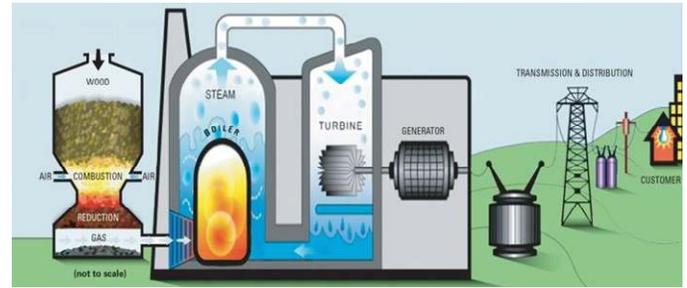
CO<sub>2</sub> emissions from biomass are part of a short cycle and do not lead to a net increase of CO<sub>2</sub> in the atmosphere.

#### 5. Biomass Power Plant

The most common types of boilers are hot water boilers and steam boilers. Wood chips, residues and other types of biomass are used in the boilers, in the same way as coal, natural gas and oil.

Fuel is stored in a bunker for further transport to the boiler. In the boiler, water is heated to high temperature under pressure. Steam from the boiler thrown on the turbine, which is connected to the generator. Steam that has passed through the turbine, heats district heating water, which is distributed through the district heating network's piping.

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#### Another uses of biomass

Rural prosperity to a great extent could be achieved through Biomass conservation and it would thereby result in lesser people leaving their villages and coming to cities in search of employment.

Biomass Gas Stove for small enterprises in rural areas helped villagers to a great extent in generating a alternate income.

#### 6. Biomass and the World

According to a report from International Energy Agency (IEA) biomass use in the industrial and transport sectors, covers approximately 10% of the global energy supply, of which two-thirds is used in developing countries for cooking and heating. In 2009, about 13% of biomass use was consumed for heat and power generation, while the industrial sector consumed 15% and transportation 4%. The global consumption of biofuels in transportation equaled 2% of the transport sector total.

#### 7. SOLUTIONS PROPOSED

Renewable Incentive to be given to promote usage of Biomass. Bank Loans at lesser interest rates could be provided for people venturing in Biomass. Some methods could be devised so that the supply related to Biomass remains throughout the year instead of 2-3 months. Rural entrepreneurs should be encouraged to come forward and focus on Biomass so that rural economy grows and escape from villages to cities is discouraged. Mobile app "Biomass" could be created for having a reliable Biomass Supply chain. The houses in villages/Biomass sources could be connected through this app and we could know about Biomass availability, so that Biomass can be properly stored and then can be sent to Biomass market, thereby ensuring better Biomass availability round the year.

### 8. Advantages of Biomass

No net carbon emission is occurring; all emission is recycling.

Problem of waste management is solving.

New type market gets open for farmer.

The waste of biomass plant is useful for agriculture.

Biomass used as a fuel reduces need for fossil fuels for the production of heat, steam, and electricity for residential, industrial and agricultural use.

Biomass is always available and can be produced as a renewable resource.

Biomass fuel from agriculture wastes maybe a secondary product that adds value to agricultural crop.

Growing Biomass crops produce oxygen and use up carbon dioxide.

The use of waste materials reduce landfill disposal and makes more space for everything else

Carbon Dioxide which is released when Biomass fuel is burned, is taken in by plants.

Less money spent on foreign oil

### 9. CONCLUSIONS

Results obtained prove that Transporting power to remote, rural areas is very inefficient and can be expensive for farmer's mass and other rural citizens. Farmers already have access to a large then amount of biomass material left over each year after harvests. If they had access to small biomass power plants, they could become close to self-sustaining in terms of power. If the grid was improved enough, they could even provide additional power to the national power grid This could help save rural citizens money and be a boon for rural economy. The Biomass systems range from small Biomass Gas stoves used in homes for heating or cooking, to large power plants that produce electricity, it is concluded that it is carbon neutral and is a future key renewable resource. The mobile app "Biomass is found viable option in Indian scenario for realization of Biomass potential so that rural

entrepreneurship and prosperity gets a boost, villagers need not escape from villages to cities for employment and use of fossil fuels is discouraged.

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