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Development of Eco-Friendly Clean Fuel and Solar Energy Project in Rajasthan

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Introduction

Renewable energy sources play a great role in the reducing greenhouse gas emissions and partially replacing fossil fuels. Biomass emerges as a promising option, primarily because of its potential worldwide accessibility, its conversion effectiveness and its capacity to be delivered and consumed on a CO_2-neutral basis. All natural issue is known as biomass, and the vitality discharged from biomass when it is eaten, copied or changed over into powers is called biomass vitality. Biomass provides a clean, renewable energy source that could greatly improve our environment, economy and energy security. Biomass energy generates far less air. The requirements with respect to biomass supply in terms of quality and quantity can differ considerably, depending on the energy production technology and the size of the conversion plants. India had set up around 500 MW of Biomass Capacity by 2007 and has expanded it by right around 150 MW from that point forward to stretch around 1 GW limit. Rajasthan has a great role in development of this. Rajasthan, the largest state of India constitutes about 10.4% geographical area of India. There are only two rivers, Chambal and Mahi, whose hydroelectric potential has been almost completely accomplished. The normal power of sun based radiation received over India is 200 MW/km^2 with 250–325 bright days in a year. Rajasthan gets sun based radiation of 6.0–7.0 kWh/m^2.

Solar Power

Rajasthan receives maximum solar radiation intensity in India. Therefore Rajasthan is a great developing state for solar power in India. Rajasthan is the first leading State in India with total commissioned solar capacity of 1177MW. For utilisation of the competitive edge of Rajasthan in solar sector provided by nature, Government of Rajasthan has issued a new “Rajasthan Solar Energy Policy, 2014” on 8.10.2014 with a vision of solar capacity addition of 25,000 MW in the State.

Wind Power

Rajasthan has nearly 4000 MW of installed wind capacity, the third highest in the country after Tamil Nadu and Maharashtra. Rajasthan is one of the fasting growing destination for

new wind farms. Many new locations Devgarh, Jaisalmer, Mohangarh, and Phalodi have been identified for wind power generation in Rajasthan.

Hydroelectric Power

Hydroelectricity is electricity produced from hydropower. In Rajasthan few hydroelectric dams are available. Chambal hydroelectric project and Mahi Hydroelectric project are running for the development of the electricity. Since hydroelectric dams do not use fuel, power generation does not produce CO_2.Total installed capacity of Chambal hydroelectric power project is 386 MW and Mahi Hydroelectric power project is 140 MW.

Biomass Power

Biomass energy produces far fewer outflows than non-renewable energy sources. Its utilization prompts to environment benefits especially to the decrease of environmental CO_2 concentrations. The Rajasthan Government has concurred a high priority to setting up many power projects dependent on non-traditional energy sources. With a view to promoting the generation of power from these resources, the Rajasthan Government issued a "Strategy for Promoting Generation for Electricity from Non Conventional Energy Sources" in 1999. Later on Rajasthan Government had issued “Policy for Promoting for Generation of Electricity from Biomass, 2010” (Policy-2010). It was discovered that on a normal about 92.5% of Biomass produced from the agrarian movement goes for utilization in the neighborhood for fodder, manure, fuel for thermal energy-consuming industries, biomass power plants, brick kilns etc, and about only 7.5% is available for other activities or exported to nearby states.

Biomass energy is important as it plays a role in all three sectors of energy use i.e. heating or cooling, electricity and transport. Solid biomass is the largest share of biomass used for generating heat and electricity while liquid biofuel is the largest source in the transport sector. The use of biomass for energy has grown at about 2% per year since 2010.

Bio Gas

Biogas can help to provide natural and socio-economic supportability. It consolidates research on economical utilization and production, mechanical and regular biological systems and sustainable power source selection to build up a structure for a modern environment for biogas for rural populations.

Natural Gas

Natural gas is one of the most reasonable types of energy accessible to residential customers. Natural gas is the most minimal cost conventional energy source accessible for the household purpose. The total natural gas production of Rajasthan was 432 MMSCM in the year 2010-11. It increased to 982 MMSCM in the year 2013-14 and its production will be more than 1000 in the coming year. Rajasthan recorded the most astounding development rate in complete petroleum gas generation during the years from 2010-11 to 2013-14.

Conclusion

Rajasthan Government has given special emphasis on Clean Energy Development through the setting up of the RREC (Rajasthan Renewable Energy Corporation), the State's nodal agency responsible for identification, development and promotion of non-conventional energy sources. The RREC has identified many locations to implement the “Village Energy Security through Biomass”, for meeting energy requirements of a village through locally available biomass resources with full participation of the local community. In Rajasthan very little work has been done on the power generation from biomass. Through this study I have tried to find out the renewable energy sources and its uses in the development of the Rajasthan.

References

E. Iakovou and A. Karagiannidis et al, “Waste biomass-to-energy supply chain management: A critical synthesis”, 30 (2010) Pg 1860-187.

Ecosystems 1998, 1, 6-18. Rajendra Singh, Amrit B. Karki, Jagan Nath Shrestha, “Production of Biogas from Poultry Waste”, International Journal of Renewable Energy, Vol. 3, No. 1, January 2008.

Gold standard validation of the CDM Project: Electricity generation from Mustard crop residue; Tonk, India, (2009).

Hydropower Energy. Available online: http://www.oze.stuba.sk/oze/vodna-energia/ (accessed on 2 March 2015).

Peterson, G.; Allen, C.I.R.; Holling, C.S. Ecological resilience, biodiversity, and scale.